



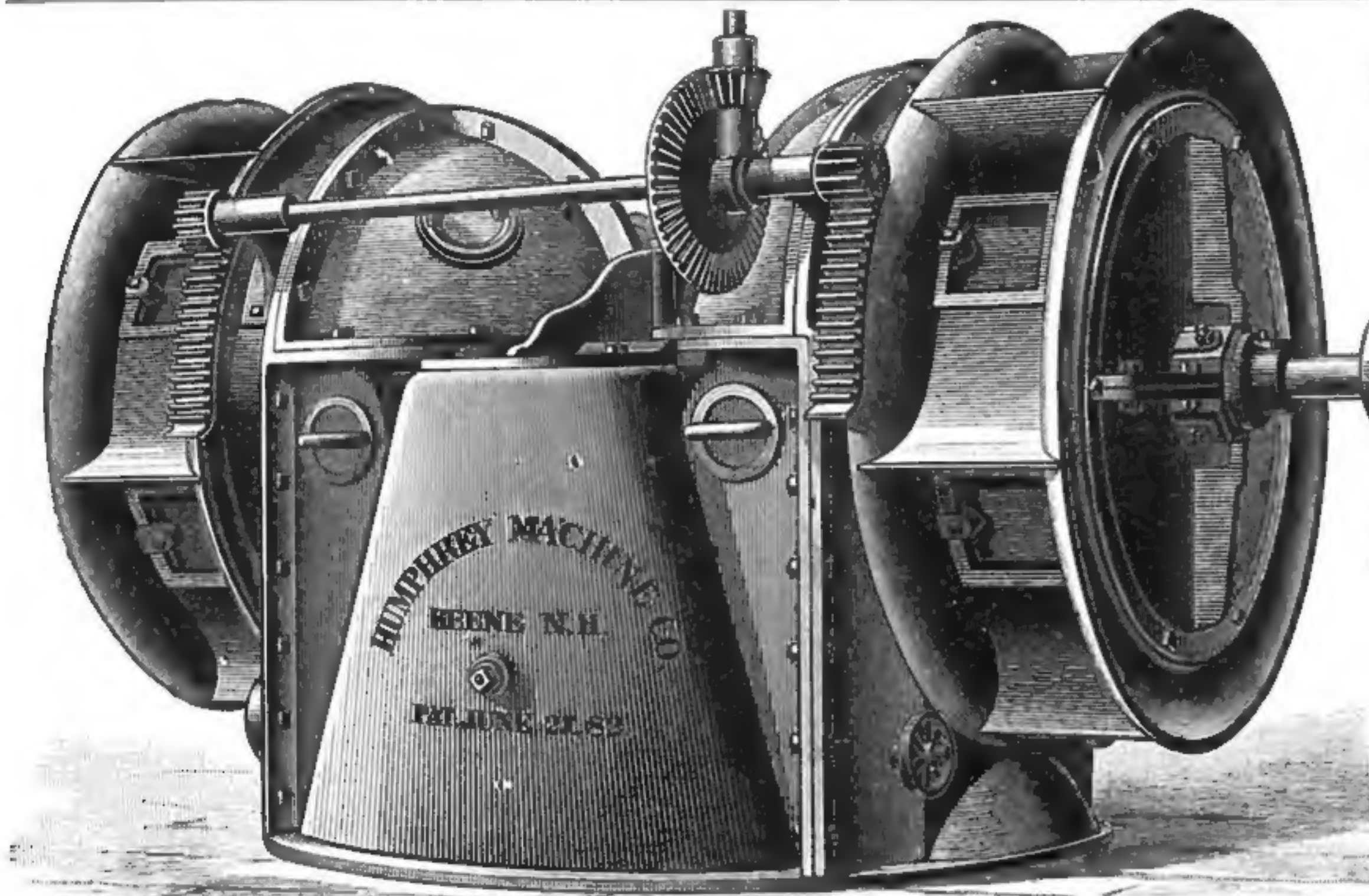
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXIII. No. 15.

BUFFALO, N. Y., DECEMBER 8, 1890

\$1.50 PER YEAR.



THE X-L-G-R^{OR} IMPROVED CIRCUMSHOT Water Wheel

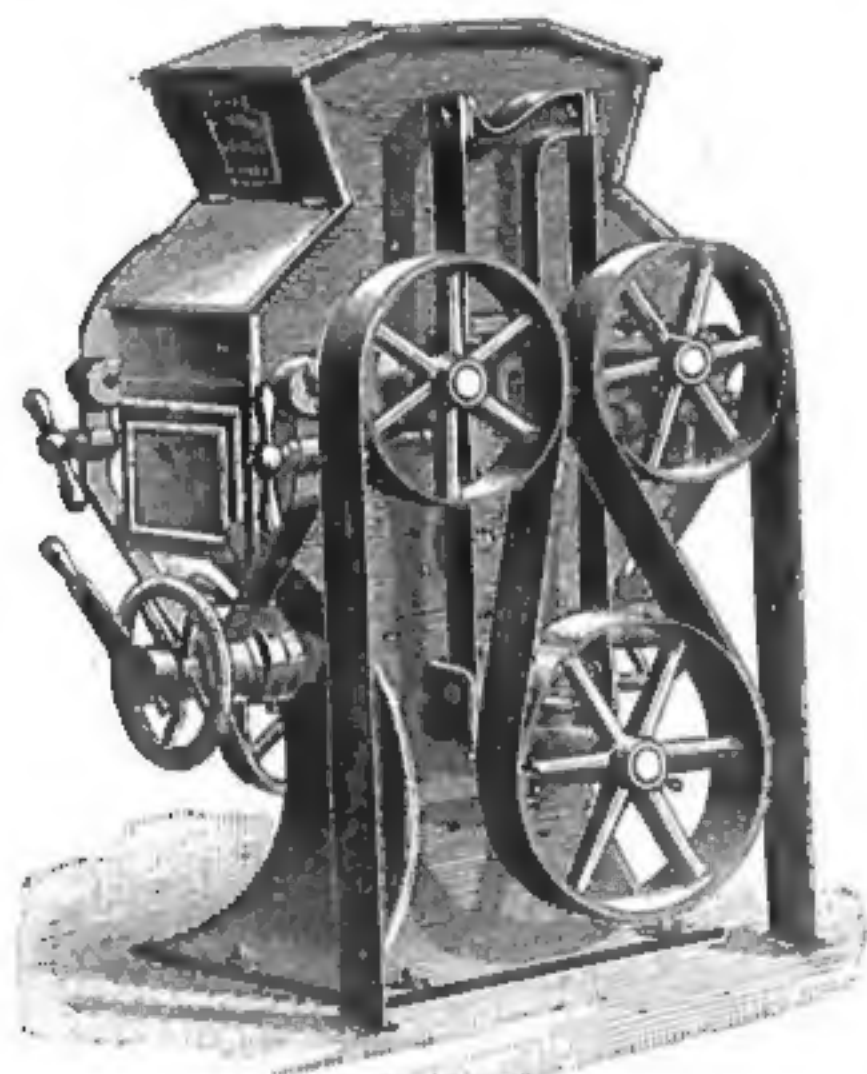
On Horizontal Shaft. Saves cost, annoyance and loss of power incident to use of gears. Affords more available power from water applied at full or part gate than any other. The cheapest, best and most desirable Water Wheel yet produced.

EFFICIENCY,
ECONOMY and
EXCELLENCE

FULLY GUARANTEED.

Humphrey Machine Co

KEENE, - - N. H.



'Keystone' 4-Roller Wheat Mill.

FLOUR MILLS. CORN MILLS. HOMINY MILLS.

SALEM, IND., September 15, 1890.

THE J. B. ALLFREE CO., INDIANAPOLIS, IND.

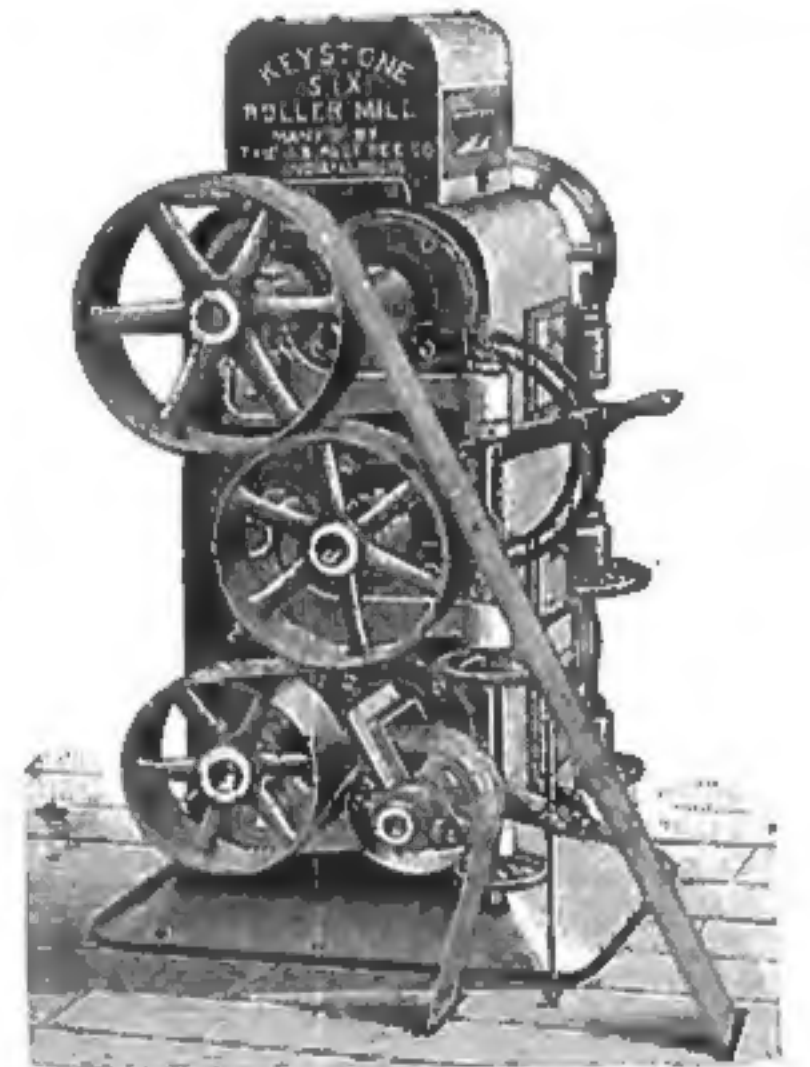
GENTLEMEN—We have been running the Mill you built for us for about five months, and we cheerfully say that it is giving entire satisfaction. We are doing splendid work. Our flour competes favorably with anything that comes to this market. Our percentage of low grade is very small and our clean-up is as good as we can ask.

Yours truly,

PERSISE BROS.

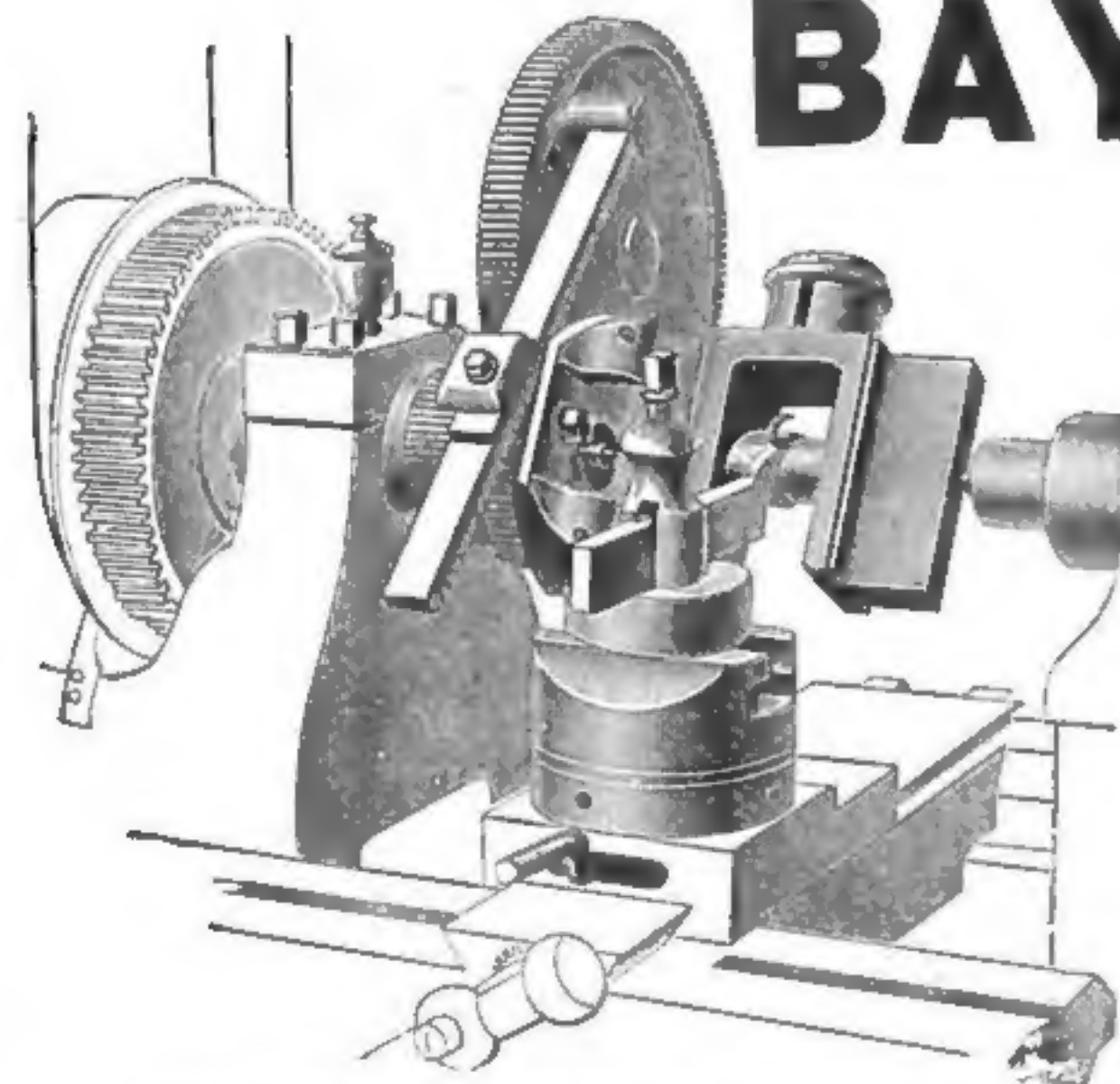
SEND FOR CIRCULAR OF OUR 6-ROLLER CORN AND FEED MILL.

THE BEST IN THE WORLD TO-DAY.



'Keystone' 6-Roller Corn & Feed Mill.

ADDRESS THE J. B. ALLFREE CO., 76 to 86 Shelby Street, INDIANAPOLIS, IND.



PATENT CROSS-HEAD MACHINE.

BAY STATE IRON WORKS

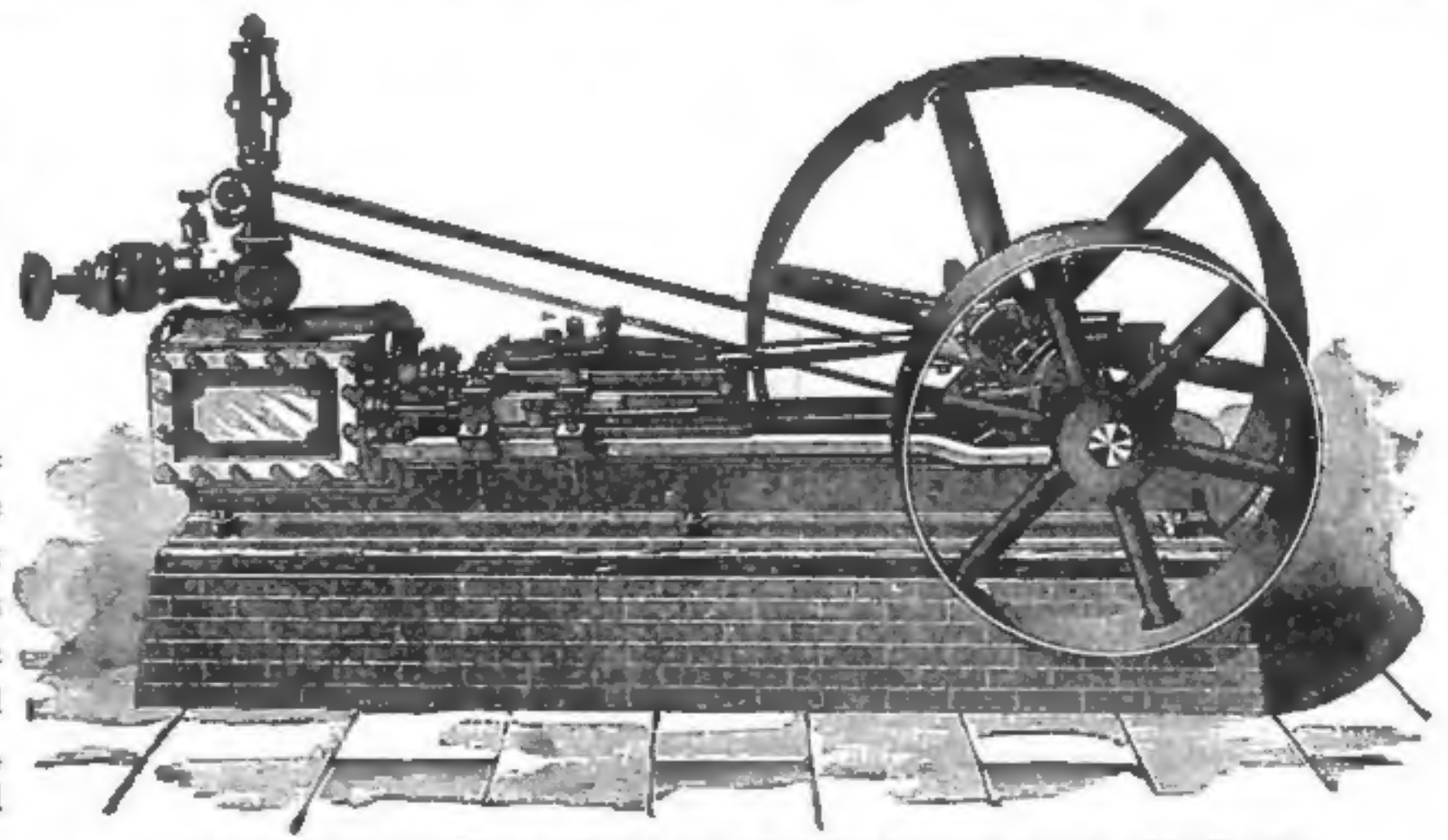
—Manufacturers of—

Engines, Boilers,

—AND—

HOISTING MACHINES.

Also the Patent Cross-Head Machine and Acme Cube Pipe Tongs. We make either Center or Side Crank Engines, on same bed. Make engines from 11 to 250 Horse-Power. Have over 3,500 Engines and Boilers and over 1,000 Hoisting Machines in use, and all giving good satisfaction. Send for Catalogues and Prices.



IMPROVED DETACHABLE CENTER-CRANK ENGINE.

Noble & Hall, Box 462, Erie, Pa.

OFFICE OF CASE MANUFACTURING COMP'Y COLUMBUS, OHIO.

The Case Roller Mills. Over 14,000 Pairs in Use.

PLEASE READ OUR DESCRIPTION OF THEM, EVERY STATEMENT OF WHICH IS ABSOLUTELY TRUE.

PLEASE READ WHAT MILL OWNERS SAY ABOUT THEM.



The accompanying cut is a correct illustration of our latest improved Four Roller Mill. For fine work, great durability, simplicity, and general excellence, they stand "head and shoulders" above all others.

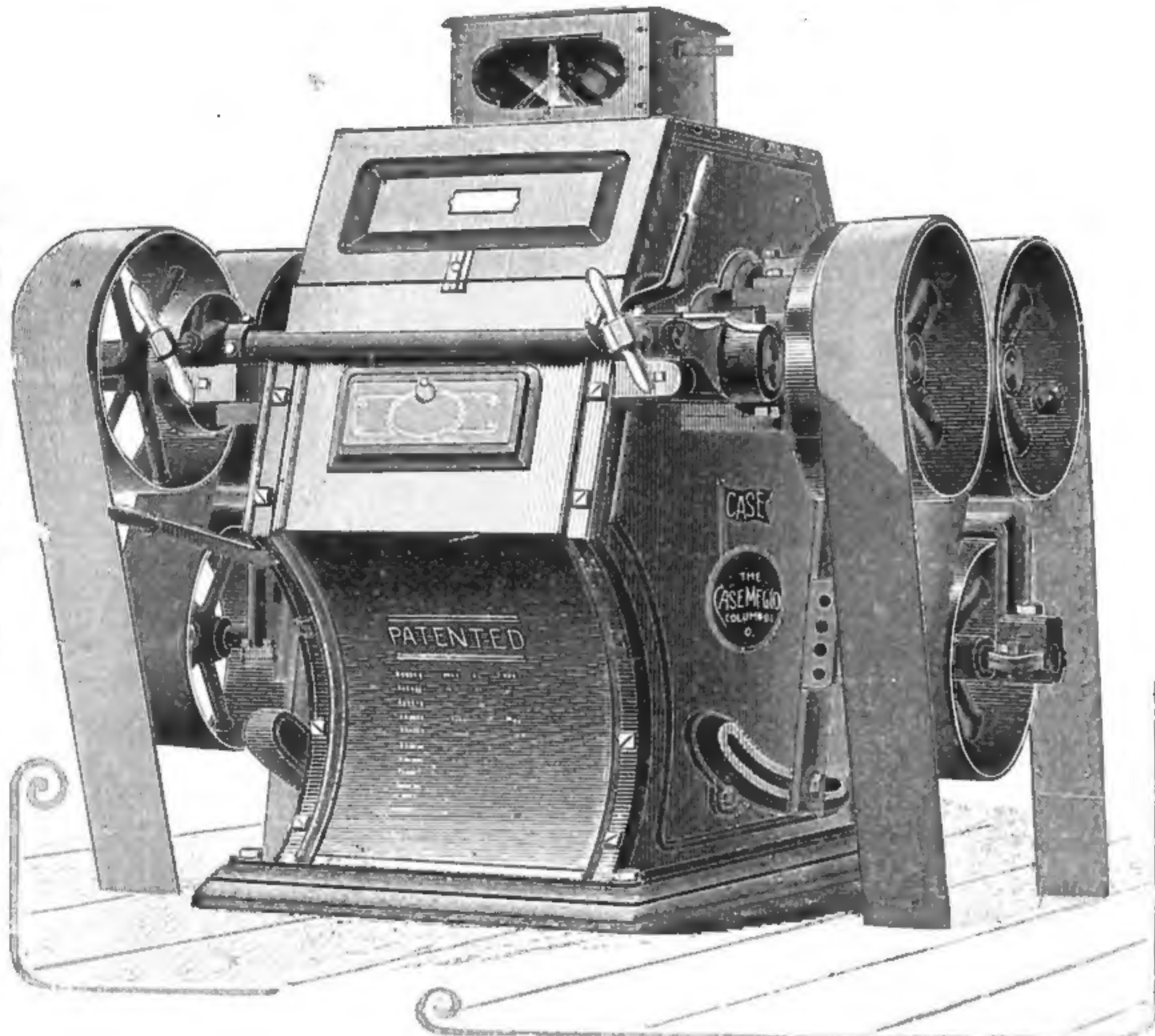
The frame is of iron with a heavy iron base.

The wood-work in top is of select cherry and black walnut, carefully shellacked and varnished.

The handles of adjusting screws and levers are finely nickel plated.

The joints are tight and dustless.

The adjustments easy, simple and perfect.



The roll bearings are wide and finely babbitted.

The belt drive is positive—no little short belts to slip.

The door for examining stock is a great convenience.

The arrangement for leveling rolls, simple and accurate.

The rolls can be thrown apart their entire length by one movement of the lever, and brought back again to original position requiring no re-setting or experimenting.

Each machine is provided with our AUTOMATIC VIBRATING FEED, which requires no attention, and never fails to spread the feed the entire length of the rolls.



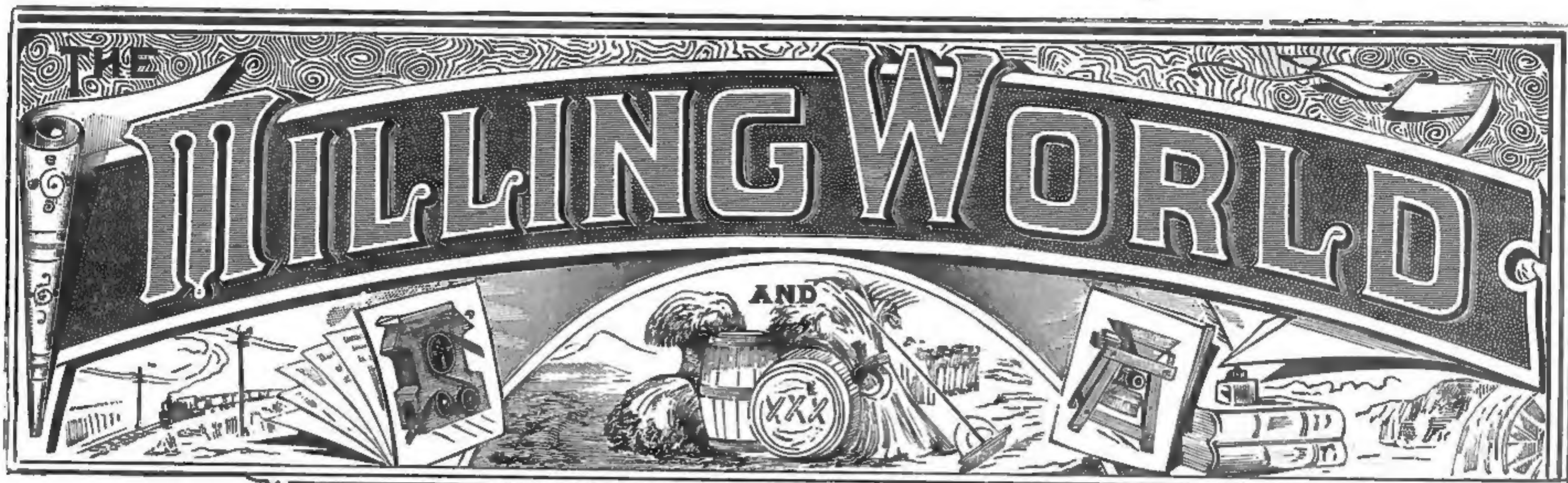
LISTEN! MICHIGAN MILLERS TALKING NOW.

CHARLOTTE, MICH., AUG. 5, 1890.

MESSRS. CASE MFG. CO., COLUMBUS, O.

Gentlemen: The mill is running fine. We are enjoying quite a fine little trade. Already have put over twenty tons of flour on the market here since we started the 7th of July, and it is giving elegant satisfaction. Every one who has seen our outfit pronounces it A 1, and the Case Automatic Feed can't be beat. In fact the Rolls are models of perfection. We are making a close finish and placing our goods alongside of the long system mills, carrying off the cake. We are highly pleased with the millwright work, and find your Messrs. McKenie and Shough congenial gentlemen to do business with.

Very truly yours, PERKINS & MOON.



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A CANADIAN journal asserts that 300 families living at Hamilton, North Dakota, are preparing to remove to Manitoba. Should they do so, it will be a case of jumping out of the frying-pan, not into the fire, but into the refrigerator. It is certain that a farmer who can't make a "go" in the United States will do far worse in Manitoba. Success to the emigrants, in case they go.

TRANSPORTATION problems are vexing the millers in some of the Western States. With the legislatures of a number of States in the hands of the farmers, the coming year may witness some railroad and anti-railroad legislation that will revolutionize industry in the West. The millers may have some just causes for complaint, but they must not forget that, while it may be policy to discipline the railroad managers into the practice of justice, it would be the worst policy in the world to bankrupt the railroads by adverse legislation that would make them unable to do business on a basis that implies a fair return for investment, administration and maintenance. There are many side roads in Western States maintained at a steady and positive loss, which are beneficial to farmers and millers alone, and farmers and millers should not re-enact the old fable of killing the goose that lays the golden egg. Were these side roads abandoned, thousands of producers of grain would be absolutely cut off from the markets, and an exodus would be the result. The fool Interstate Commerce Law has shown how meddling with private business can seriously cripple private owners and managers without benefiting the public one iota. Carry that same pernicious principle of meddling into the details of railroad management in the Western States, and the farmers will find themselves in even a worse predicament than their present one.

FLOURING capacity in the United States must be greatly overestimated, or else a vast amount of capital is being unwisely invested in flouring-mills. According to generally accepted estimates, the flouring-mills of this country are capable of producing from 80,000,000 to 85,000,000 barrels of flour yearly. The population of the country is about 62,500,000, implying a consumptive capacity of about 60,000,000 barrels a year, allowing a little less than a barrel per year for each head of population. This would leave 20,000,000 to 25,000,000 barrels a year for export, while the markets call for 10,000,000 to 12,000,000 at the most. In view of these figures it seems safe to assert that the mills in the United States are credited with a capacity too large by 20 per cent., at least, and possibly 30 per cent. It is not a difficult matter to find a mill rated as a 1,000-barrel mill, which can not grind 750 or even 600 barrels in 24 hours. Hundreds of mills are rated at double their actual capacities, and it would hardly be possible to find a single mill rated below its actual capacity. It is openly asserted that certain great mills in certain "supremacy" milling centers are really capable of grinding only 60 per cent. of their rated totals. Probably this explains how it is that so many new mills are being built, and why they seem to find profitable work, in spite of the disastrous over-production implied in the rated

total capacities of the existing mills. During this year many scores of new mills, both large and small, have been built, and the order-books of the mill-builders and of the manufacturers of flouring machinery indicate an equal or even greater increase during 1891. In spite of all the complaining of men already in the business, other men by the scores are willing to invest their money in milling plants, and the inference appears to be that the actual aggregate capacity of existing mills is overestimated by 20 to 30 per cent. The mills grinding for export may have too much capacity for that trade in seasons of abundant crops abroad, but, at our present rate of growth in population, the export mills will in a few years find a home market for all their product.

In a recent number of this journal we published the preliminary estimate of the population of the United States, exclusive of Indians on reservations, Alaskans and whites living in Indian Territory. That estimate made the total 62,480,540. Now the verified, or official, report of Census Superintendent Porter is announced from Washington, making the grand total 62,622,250, an increase of 12,471,467 since the census of 1880. The "representative population," that is, the population on which is based the apportionment for representatives in Congress, is 61,908,906, an increase of 12,537,566 since 1880. The "non-representative population" now is 713,344, against 784,443 in 1880. The growth of the country during the decade has been large enough for all practical purposes. It would not be a bad thing for the United States to have all immigration cut off during the coming decade. In many ways it would be the best thing that could happen. A population of 62,622,250 is a mighty mass of humanity, and government is not an easy thing, even were all the citizens of the country native-born and thoroughly American in all their ideas. The infusion of 5,000,000 to 7,000,000 foreigners every decade necessarily implies a good deal that is in no sense American or desirable in the way of citizenship, and a check to the incoming streams of humanity would permit the thorough assimilation and Americanization of those who have come in during the past ten or fifteen years. That such a check and its implied changes are desirable may be seen in the tendency noticeable here and there among incomers to attempt clannish colonization. In such cases the foreigners propose to establish themselves in the United States, not as citizens of the country in all essential ways, but as foreigners retaining foreign languages, foreign customs, and foreign ideas of society and government. There is room for worthy immigrants here, to be sure, but the immigrants ought to come in as citizens, not as clannish foreigners obstinately refusing to be merged into a homogeneous people. European observers have always predicted the disruption of the United States through the enormous influx of foreign and non-assimilating elements. We do not fear disruption from that cause, but we do disapprove the establishment of purely foreign colonies in the United States. Of course, time will bring even the clans into line, but the foreigners should be willing to fall into line at once, instead of waiting to be forced into line by their environments.

The DAWSON ROLL WORKS CO.

FOUNDERS & MACHINISTS,

—MANUFACTURERS OF THE—

Dawson Roller Mills

—AND FURNISHERS OF—

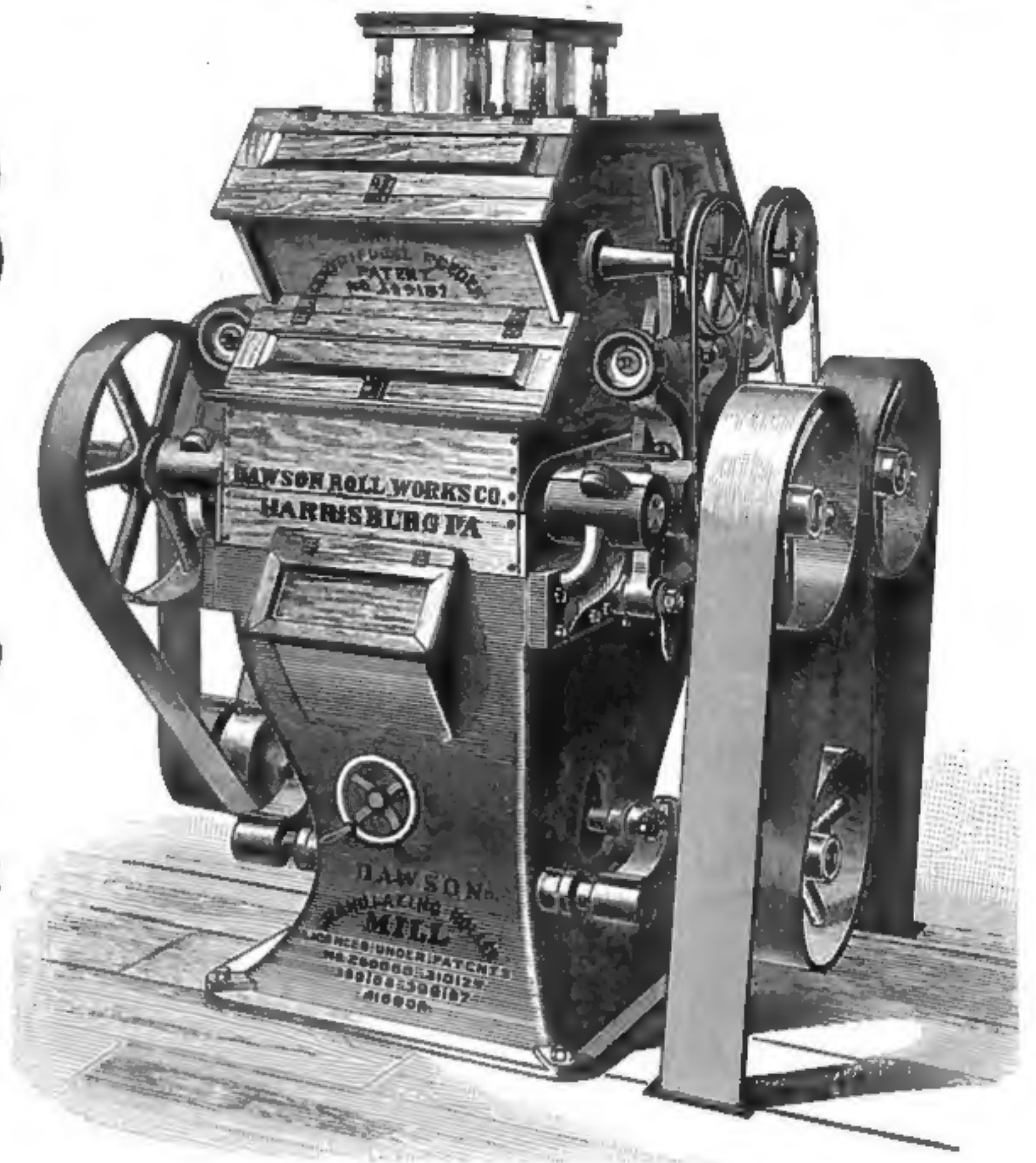
CHILLED IRON ROLLS

WITH DAWSON PATENT CORRUGATION.

ALL STYLES OF FLOUR MILL ROLLS RE-GROUND AND
RE-CORRUGATED WITH ANY FORM OF CORRUGATION.

We have had large and extended experience in grinding and corrugating chilled rolls for milling, and have one of the largest and most improved plants in the country for this work, which enables us to meet the most exacting requirements of the trade promptly.

ORDERS AND CORRESPONDENCE SOLICITED.



DAWSON ROLL WORKS CO.

South and Short Streets,

HARRISBURG, PA.

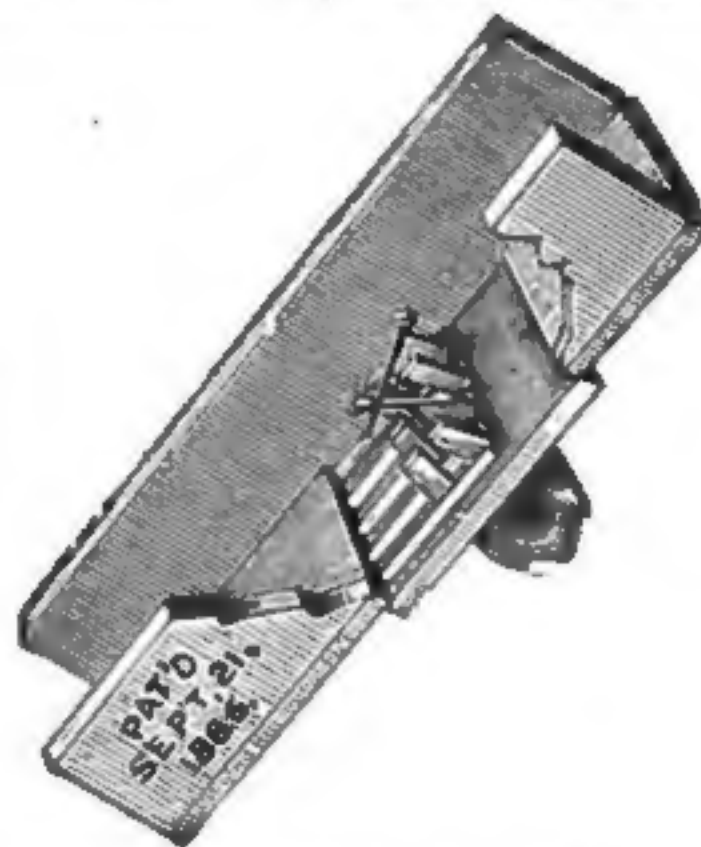
BARTLETT'S VERTICAL MILL

CLEVELAND, Oct. 3, 1890.
DEAR SIR:—We have now been using your 18 inch Vertical Mill for several months. It took the place of a 30-inch under-runner. We can grind nearly twice as much grain of all kinds, including clear oats, as we ever could with the 30-inch Mill and with considerable less power. We gladly recommend the mill. Yours truly, SHEETS BROTHERS.



ECONOMIC MAGNETIC SEPARATOR.

Every Miller Should
Give One a
Trial.



Durable. Cheap. **\$7.00** Thirty Days' Trial.

C. O. BARTLETT, - CLEVELAND, OHIO.

The Grand Hotel

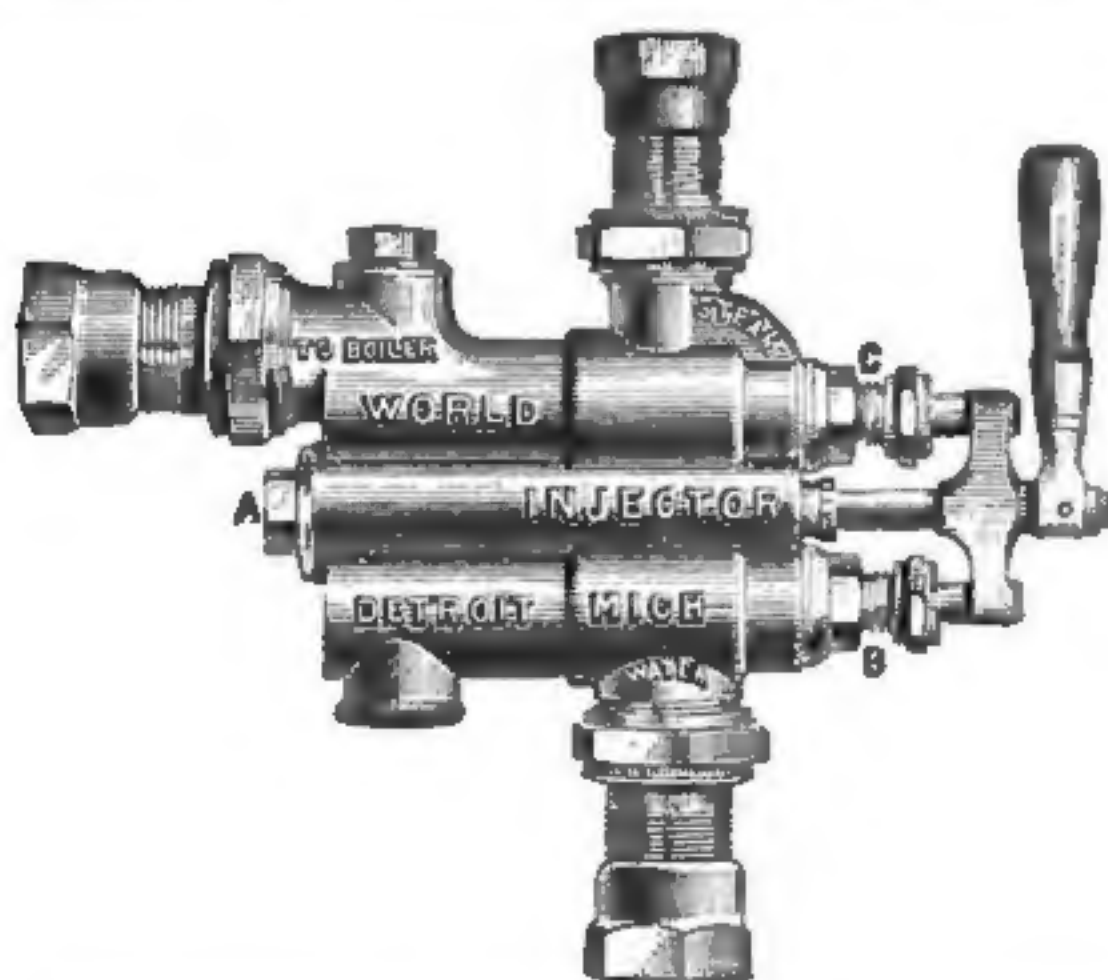
LOCKPORT, NEW YORK.

Remodeled last year. Refurnished entirely with new and elegant furniture. Fitted with all modern improvements, including Electric Lights, Steam Heat, Call Bells, Elevator, Etc.

FREE BUS TO ALL DAY TRAINS.

W. C. COMSTOCK, PROP.

When Writing to Advertisers Please Mention 'The Milling World.'



THE Best is the Cheapest. Whenever you want a Boiler Feeder that will prove reliable under all circumstances, buy the **WORLD** Injector. It is absolutely the simplest and safest to operate and handle of any injector now on the market, **FOR** it is operated by a single lever only. In whatever territory you find these reliable World Injectors on **SALE** they are always guaranteed by the seller.

GOLD is good in whatever part of the world you may travel, and the "**WORLD** Injector is worth every **DOLLAR** it will cost you. Catalogue containing Price List, valuable tables, and useful facts, figures and information **SENT** to engineers, machinists, and all interested in a perfect working injector, post-paid, upon application, **FREE**

AMERICAN INJECTOR COMPANY,

175 Larned Street West, DETROIT, MICH.



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Buffalo, N. Y.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS McFAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application.

Advertisements of Mills for sale or to rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD, BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 8 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office 10 cents must be added to pay postage.

WANTED, TO RENT.

A good Custom Mill, in a good grain section. Steam or water power. Address, MILLER, P. O. Box 170, Pocomoke City, Worcester County, Md. 252

FOR SALE AT A BARGAIN

I have a half interest in a Short System Roller Mill which I will sell at a bargain. Don't write unless you mean business. Address, GEO. FOSTER, Wakeman, O. 47

FOR SALE.

One No 1 Howes, Babcock & Co, Silver Creek, N. Y., Lengthened Scourer and Smutter, nearly new. Address, CHAS. SCHOEPLIN & BRO., Gardenville, N. Y. 46

FOR RENT.

Clinton Mills, at Black Rock, Buffalo, for rent on reasonable terms, recently repaired and put in good order. Apply to CHAS. DANIELS, over 811 Main Street, Buffalo, N. Y. 6tf

FOR SALE.

Rare chance, Grist, Saw, Planing Mill, Lumber and Coal Yard, doing good business. Growing village; 15 miles from Washington. Owner wishes to retire. Small capital needed. Terms easy. A. FREEMAN, Vienna, Va. 37

FOR SALE

Whole or part of a 125-barrel Flouring Mill, built entirely new from ground up. Equipped with latest machinery. Side track at mill door. Located in South Michigan. Big local and exchange trade. For further particulars address B. B., care of THE MILLING WORLD. 37

FOR SALE.

Flour and saw-mill with or without farm of 88 acres. Four buhr mill, with machinery and building in most excellent condition. Buildings on farm good. Good run of custom. Can run by water 9 months, also have steam power. Terms easy. On Big Indian Creek, 1/4-mile from Crandall, on Air Line. Mrs. C. KRACKMAN, Crandall, Ind. 36

MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 13 bushels per hour; new, best make.
One 14-Inch Vertical Feed Mill; best make, new, a bargain.
One No. 6 Dustless Separator; new, a bargain.
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.
Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.
One No. 2 Purifier. New. Best make. A bargain.
One 20-Inch Portable Mill.
One 18-Inch Double Gear Portable Mill.
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

FOR SALE AT A GREAT BARGAIN.

The Reist Roller Mill, at Williamsville, 4 1/2 miles from Buffalo city line. Eighteen acres of land, with dwelling houses, twenty-two feet fall stone dam, Leffel Turbine water wheels, water the year round, steam power to assist in extreme dry seasons. Nine set 9x18 Stevens Rolls, two run of stone, three George T. Smith purifiers, grain-cleaners, scalping and bolting capacity for 80 to 100 barrels per twenty-four hours, etc., etc. Title perfect, bought at Sheriff's sale. Mill was mortgaged for \$18,000; will sell for \$5,500, without regard to loss, as I am no miller, but engaged in other business. The quick buyer will secure a great bargain. Address, WILLIS B. MUSSER, Lancaster, Pa., or my attorneys, BAKER, SCHWARTZ & DAKE, Esqs., Hayen Building, Buffalo, N. Y. 912

FLOUR MILL WANTED.

Flouring-mill wanted at Evart, Osceola Co., Mich. Good wheat region, large territory. Correspondence solicited. GEO. W. MINCHIN, Evart, Osceola Co., Mich. 69

WHAT a State is California! To-day she holds a total of 27,000,000 bushels of fine wheat, a large amount of potatoes, millions of pounds of dried fruit, canned fruits and raisins, millions of gallons of wine, thousands of tons of wool, and an endless variety of mineral, animal and vegetable products, all of which will be turned into money during the coming months. With her great wheat-growing capacity and restless enterprise, it is safe to predict that California will in the near future become a great milling State. Oregon and Washington are developing their milling industry already, and when once California enters the field, it will be with an irresistible rush that will carry everything.

PARTICULAR attention is called to the advertisement of the "Library of American Literature" in another place. This magnificent work is compiled by Miss Ellen Mackay Hutchinson and Mr. Edmund Clarence Stedman and published by Messrs. Charles L. Webster and Company, No. 3 East 14th street, New York, N. Y. It is a compendium of the literature of the United States and of the original Colonies, extending from 1889 back to 1609. It contains choice extracts from the works of 1,207 American authors and is the only comprehensive work of its kind in existence. Every American citizen who wishes to understand the literary development of his country will want this work. Address the publishers for information.

IMMIGRATION into the United States is increasing at an unpleasant rate. During the first ten months of this year the incomers numbered 427,666 against 378,140 during the corresponding period last year. Allowing a per capita consumption of four bushels of wheat per year, the incomers during ten months have increased the wheat-consuming power of the country by 1,710,664 bushels. The increase during the whole year will be considerably over 2,000,000 bushels. In addition to this must be considered the natural increase of population in the country by the excess of births over deaths, which is rated at about 2 per cent. This means over 1,000,000 a year, or an increase of at least 4,000,000 bushels per year in the wheat consumption of the country.

FLOURING-MILLS are multiplying in the South, though not at so rapid a rate as was visible one and two years ago. During this year some important mills have been established in the South, and the census totals will probably surprise many in the trade who have not studied the development of the South during the past five years. Some builders and machinery manufacturers report a large southern business during 1890, with good prospects for 1891. There is no good reason why the Southern States should not grind much of the flour they now take from Northern States. It would mean an important and very valuable diversification of southern industries to extend the area sown to wheat in the South, and to grind the grain at home for the home market. Southern men see this, and the result is a really great growth in grain-growing and milling in the South.

PARTICULAR attention is called to the advertisement of Messrs. G. and C. Merriam and Company, of Springfield, Mass., which appears elsewhere. They announce their new "Webster's International Dictionary," the successor to the famous "Unabridged" that has so long been the leading practical dictionary of the English language. The "International" is the work of 100 specialists engaged for over 10 years in editorial work, and it is beyond doubt the most excellent practical English dictionary now on the market. Over \$300,000 were spent on preparation. It contains over 2,000 pages, is profusely illustrated, contains a large amount of encyclopædic information, and presents a number of departments of great value for every-day use. Don't buy any of the cheap reprints of the ancient 1847 edition of Webster's Dictionary, with which the market is flooded. Buy the "International," and then you will have the very best. Address the publishers for terms.

TRIPLE-RIVETED BUTT-STRAP JOINTS.

"The Locomotive."

In the October issue of the "Locomotive" we gave Mr. John H. Cooper's solution of a problem in riveted joints, and in this issue we reproduce a solution of a similar problem by Mr. Vau Clain, of the Baldwin Locomotive Works. The dimensions of the joint in question are as follows: The plates are of steel, $\frac{3}{4}$ of an inch thick, and with a tensile strength of 55,000 pounds to the square inch. The rivets are of iron, $\frac{1}{2}$ of an inch in diameter, with a shearing strength of 45,000 pounds to the square inch. In the double-riveted portion the pitch is $3\frac{1}{4}$ inches, and in the outside row it is $6\frac{1}{2}$ inches. The problem is to decide what the strength of the joint is in terms of the solid plate and in accordance with the Philadelphia City Ordinance, which does not expressly provide for joints of this character. Mr. Vau Clain's solution of the problem was given in the September number, but, as it was there given, it contained several typographical errors, which have been corrected in what follows: There are three ways in which a joint of this character may fail: 1. By shearing all the rivets, which involves rivets D in single shear, and rivets C in double shear. 2. By a fracture of the plate across the line BB, and a simultaneous shear of the rivets DD. 3. By a fracture of the plate along the line DD. Let us consider a portion of the joint $6\frac{1}{2}$ inches long, say the portion included between the two long vertical lines passing through the rivets DD. The strength of the solid plate in a unit of this length is: Strength of solid plate— $6\frac{1}{2} \times \frac{3}{4} \times 55,000 = 134,062$ lbs. If the joint break in accordance with the first supposition, there are four whole rivets, CCCC, to be double-sheared, and one whole one, D, to be single-sheared. The diameter of the hole filled by the rivet being, say, $\frac{1}{2}$ of an inch, the sectional area of each rivet is .5185 sq. in. Hence:

Shearing strength of CCCC = $.5185 \times 4 \times 2 \times 45,000 = 186,660$ pounds.
 Shearing strength of D = $.5185 \times 1 \times 45,000 = 23,332$ pounds.

Strength of joint, on supposition (1), = 209,992 pounds.

The diameter of the hole filled by the rivet, $\frac{1}{2}$, when expressed decimally, is .8125. If the plate breaks across BB, in accordance with the second supposition, the effective section in the part of the joint under consideration is reduced by twice this amount on account of the two holes punched or drilled for the rivets CC that lie on the line BB. Hence, the effective width of plate along this line is: 6.5 inches— $(2 \times .8125 \text{ inches}) = 6.5 \text{ inches} - 1.6250 \text{ inches} = 4.875 \text{ inches}$. Hence, the resistance of the $6\frac{1}{2}$ inch section to fracture in this manner is:

Tensional strength of plate along BB = $4.875 \times \frac{3}{4} \times 55,000 = 100,547$ pounds.
 Shearing strength of 1 rivet in row DD = $.5185 \times 1 \times 45,000 = 23,332$ pounds.

** Strength of joint, on supposition (2), = 123,879 pounds.

On the third supposition, we have merely to break the plate across: 6.5 inches— $.8125 \text{ inches} = 5.6875 \text{ inches}$. Hence, tensional strength of plate across DD = $5.6875 \times \frac{3}{4} \times 55,000 = 117,305$ pounds. In accordance with the Philadelphia rule, we are to take the least of the three strengths of the joint computed above and divide it by the tensile strength of $6\frac{1}{2}$ inches of the solid plate, which strength we have already found to be 134,062 pounds. Obviously, the joint is weakest along the line DD, so that we have to call its strength 117,305 pounds. Hence, the percentage of strength of the

joint is: $117,305 \div 134,062 = 0.875$. Hence, the joint in its weakest part has $87\frac{1}{2}$ per cent. of the strength of the solid plate. It may be well to say that the number 2.4375 inches in the cut represents the distance in the clear from edge to edge of the rivet holes, though for the sake of clearness it is shown as though it extended only from the head of one rivet to the head of the next.

POINTS IN MILLING.

If variety is the spice of life, certainly the flour-makers of the world should enjoy well-spiced lives. It is asserted that there are nearly a thousand varieties of wheat in existence, and that of these at least 750 varieties, all distinct, are well known. It is fortunate for the average miller that he is not forced to learn, at most, over a score of these numerous varieties in his practical every-day work.

WHILE he may be fortunate in not having to learn to mill 1,000 different varieties of wheat, implying 1,000 different modes of handling and treatment at one or more points, it is unfortunate that the average miller does not feel compelled to learn more of the score of wheats he does handle and convert into flour. Any observer of practical milling and millers will not fail to be impressed by the ignorance of certain important essentials shown by many flour-makers.

Very few of these men take the pains to inform themselves as they should be informed.

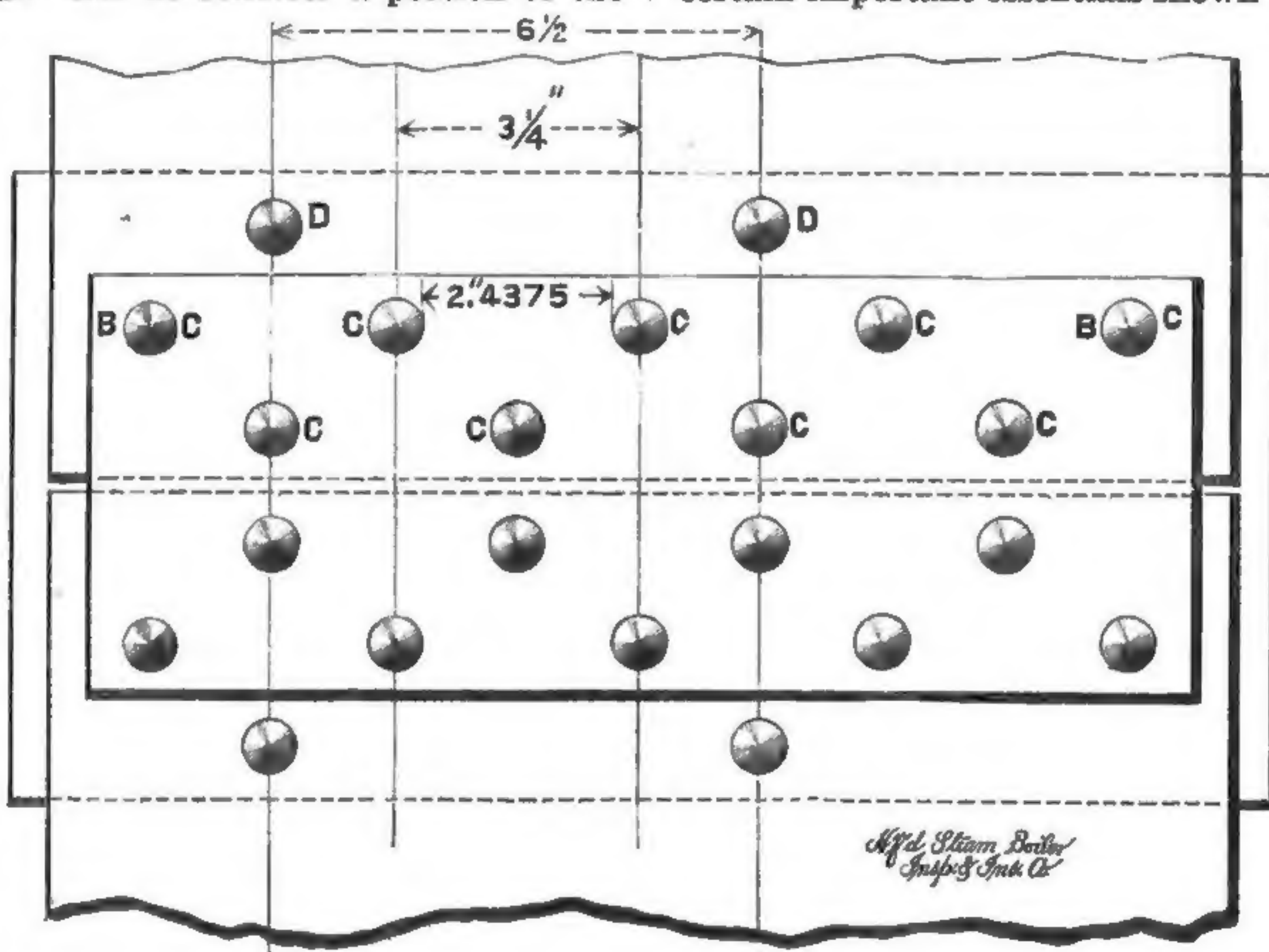
For instance, looking over my notebook, I find that, out of 30 millers, to whom I put the question: What is the per centage of offals in average wheat? not one was able to give the correct percentage. Ten of them placed it above 25 per cent., and 5 of them thought it could not be "much higher than 2 or 3 per cent."! How can such men be actually

satisfied that they are not wasting their capital in the bran-pile, or destroying their trade by sending the bran-pile into the bag or barrel?

ANOTHER question I have often put is this: Is the bran coat one solid coat, or skin, or is it a compound coat, composed of thinner membranes? Not one correct answer did I get out of a total of 15 answers! How can a miller knowing so little about the nature of the bran coat ever be sure that some of the light, thin, transparent particles, which he may find at unexpected places, are bran, or are not bran? Not knowing what they are, how can he proceed? If they are genuine bran and he does not know it, his operation may be wrong. If they are not bran and he thinks they are, his work may go on a wrong line again. At every turn he is entangled in uncertainty and confusion. He must work at random and trust to luck to pull him through.

EVERY flour-maker ought to learn thoroughly the rudiments of his work. He should know first of all how much flour exists in the average wheat berry, in what shape it exists, and in what relation it stands to the non-floury parts of the berry so far as extraction is concerned. This is the A B C of his business, and, if he does not learn it, he will be in the plight of the boy who proposes to read without learning the alphabet.

How may millers know what makes one wheat berry look red and another one white? If he knows where the coloring



matter lies, he will generally be able to govern the color of his flour. If he knows where the gluten lies, he will know how to control the strength of his flour. If he knows something about the nature of the germ, he will understand why he should not let that element go into his flour, even though it may give the alleged "nutty flavor" so often mentioned by writers who are in a transitional frame of mind, nearly willing to learn modern milling, but nearly unable to let go ancient milling. These betwixt-and-between "nutty flavor" men are hybrids, the result of a cross between the ancient and the modern. The miller who grinds for the consumer of to-day must have some more definite and scientific guide for work than a mere catch-phrase like "nutty flavor" or "rich golden color."

THE miller to whom all these rudiments are a sealed book must necessarily work in the dark a good deal. Attempting to drive a nail or run a saw in the dark, he is almost certain to smash his fingers or saw them off. Attempting to do such delicate work as extracting fine flour from the very complex wheat-berry, in the dark, he is likely to spoil his product and empty his pocket-book.

ACCORDING to the researches of Mege-Mouries, the wheat-grain contains 90 per cent. of endosperm, or floury matter, while the remaining 10 per cent. is divided as follows: Outer skin .5 per cent.; second skin or epicarp 1 per cent.; third skin or endocarp 1.5 per cent.; fourth coat or testa 2 per cent.; embryo or germ 2 per cent.; embryo membrane 3 per cent. Placing the "endosperm" at 90 per cent. does not imply that the wheat berry will yield 90 per cent. of flour, although certain sapient metropolitan economic writers, who mill in the gambling dens and pits, have asserted that wheat can be "made to yield 98 per cent. of flour"! The endosperm does contain the flour of the berry, but the flour is made up of countless small particles. It is these particles, broken up, that make flour. These particles are distinct, each being held in its distinctive form, cubical or other, by a well-defined film, or tissue, the well-known fluff of the dust-rooms and exhaust-boxes. Breaking down these tissues releases the flour. Removing the tissues reduces the flour to much less than the 90 per cent. of the berry allotted to the endosperm. It is probable that the removal of these tissues cuts the actual floury portion of the berry down to 85, or even less, per cent.

PROVIDING the separation and purification could be made absolutely perfect, that is, so perfect that no atom of the flour went with the offal, and no atom of the offal went with the flour, it would be possible to get a yield of 82 to 85 per cent. of flour. This is ideal milling. In actual milling it happens that the flour persists in sticking to the outer coats when the berry is broken, and that bits of the outer coats will persist in getting mingled with the flour. This implies two sources of loss of flour. The bran carries away some adhering flour. Then the purification to remove fine bran and the flour-atom films causes a further loss of the delicate white flour, so that the laboratory percentage of 90 per cent. flour sinks to 85 per cent. under absolutely perfect, ideal, milling, and to 75 or even 70 per cent. under the actualities of milling for the market.

THE moment the flour-maker begins to study his work scientifically, that moment he begins to appreciate its requirements. Yet, how few there are who really try to study it as they should!

I HAVE asked a miller: Where do you think that fluffy stuff comes from? meaning the tissue in the stive-room. I have received the reply: "That? O, that comes from the bolting-cloth. It is the silk thread worn off by the stock sliding over it." Of course, to take enough silk to cloth a reel and compare its bulk with the amount of fluffy tissue passing over that reel in a day, or a week, would be enough to convince even a man giving that answer that he must be wrong in his theory of the origin of the tissue in question.

At least, it ought to be enough. Yet I have heard a man insist that "it is silk, all the same!"

THE moral is that the average miller would be a very much better miller on the average if he would learn more about the composition of the grain he manipulates. I find men running flour-mills who read nothing that pertains to their own business, and who resent any suggestions about the value of scientific knowledge. Naturally enough, these men are in the rear end of the procession. In the store nearest to the mills of such millers I always find the product of mills from a distance, mills whose owners do understand their business through and through, and who are enabled by their knowledge to send their flour 1,000 or 2,000 miles to outsell and undersell the millers who will not learn anything about their own work. The style of the miller is always an index to the character of his trade. When I hear the owner of a mill running down "these confounded newfangled fool wrinkles in grinding," I always know that he is being hurt in his trade by the mills he ridicules. The fact is, milling to-day is becoming more and more an exact science, and employing more and more new economies, so that it is necessary for the small miller to keep posted on those economies, unless he wishes to be driven to the wall by the larger millers, whose establishments do employ every possible application of advanced science and recorded experience, thereby increasing the merit while decreasing the cost of their product. The work of the small miller must be done in direct competition with the large miller, and the only salvation for the small miller is to post himself as well as the large miller is posted on all matters affecting the cost and quality of product.

POETRY OF THE PERIOD.

"ALL ON ACCOUNT."

"The people of these United States agree quite generally with us on the tariff question." "THE YAHOO."

The earth on its axis spins around,
All on account of the Yahoo.
The wheat grain grows when put in the ground,
All on account of the Yahoo.
The sun, the moon and the stars arise,
And sail up in the vault of the skies,
In all their splendoriferous wise,
All on account of the Yahoo.

The oceans roll and the seasons change,
All on account of the Yahoo.
Our politics git mighty mixed and strange,
All on account of the Yahoo.
All men that have an atom of brains
Admit that nature's toiling and pains
Are merely the intellectual strains
That have their source in the Yahoo.

The water flitters and flops downhill,
All on account of the Yahoo.
There's loss or profit in farm or mill,
All on account of the Yahoo.
The rolls smash up the wheat-berry fine,
The smashed-up grape grows into wine,
The big earth exists, all men opine,
All on account of the Yahoo.

E'en gravitation its force exerts,
All on account of the Yahoo.
The planets make their gigantic spurts,
All on account of the Yahoo.
The kid grows to the size of his Paw,
The married man loves his ma-in-law,
And the fatter tires his poor old jaw,
All on account of the Yahoo.

The frost it freezes, the fire it burns,
All on account of the Yahoo.
The blasting blizzard cavorts and turns,
All on account of the Yahoo.
When the Yahoo dies the earth'll stand still,
Nor steam nor water will run a mill,
And the race of man in the tomb will spill,
All on account of the Yahoo.

BANG.

DULUTH, MINNESOTA, November 29, 1890.

THE ALCOTT TURBINE WHEEL.

Herewith are illustrations of the latest improved Alcott turbine water-wheel, manufactured by Messrs. T. C. Alcott and Son, Mount Holly, N. J. This is a compact wheel, un-

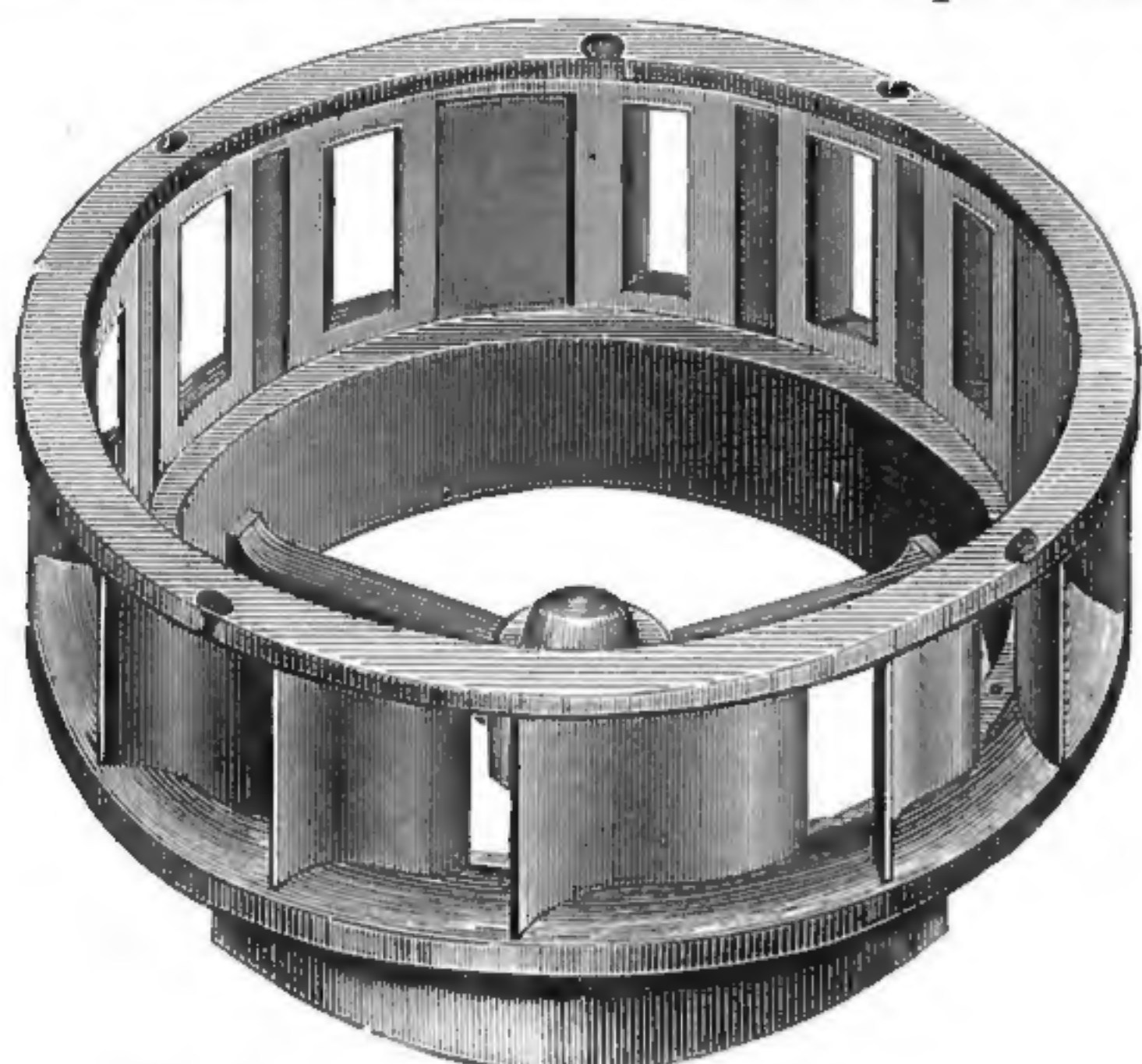


FIG. 1.—OUTER CASE AND CYLINDER.

encumbered by rods, levers, joints and bolts, and not liable to get out of repair. The manufacturers court examination of their claim that this wheel "combines more good qualities

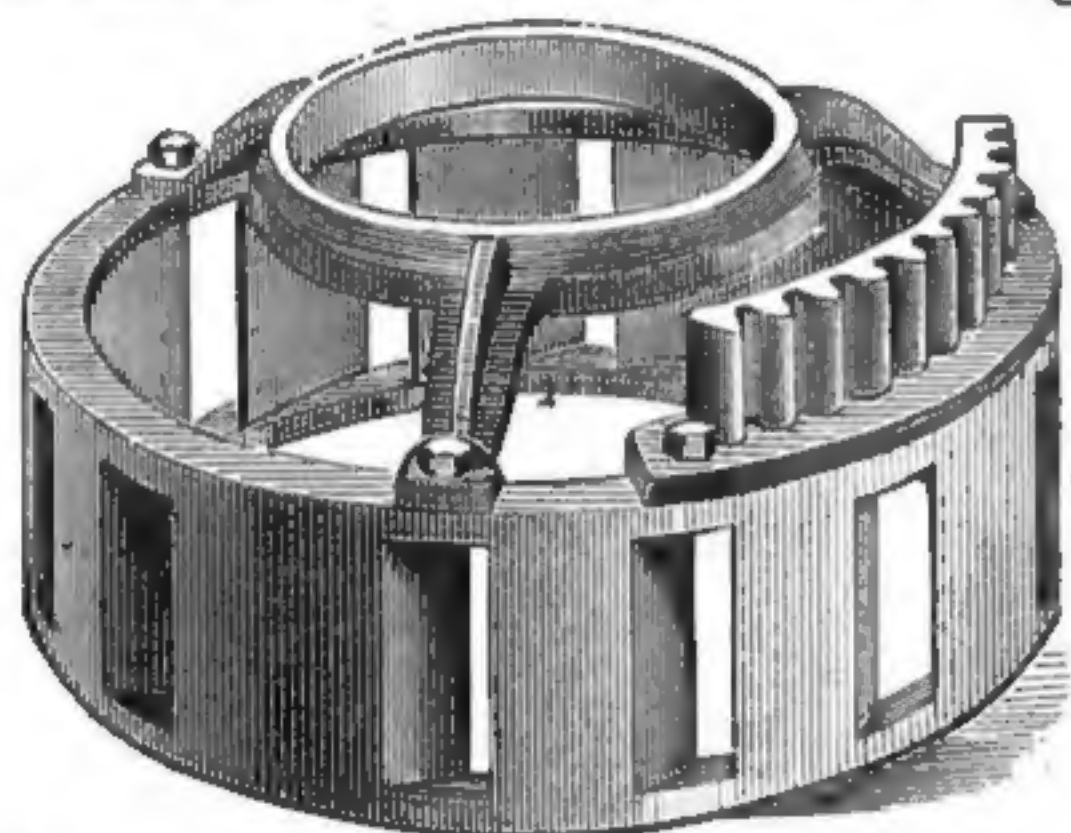


FIG. 2.—MOVABLE REGISTER GATE.

and real advantages, with fewer defects" than are found in wheels of other makers. Figure 1 shows the one-piece outer case and cylinder. Figure 2 shows the movable register gate,

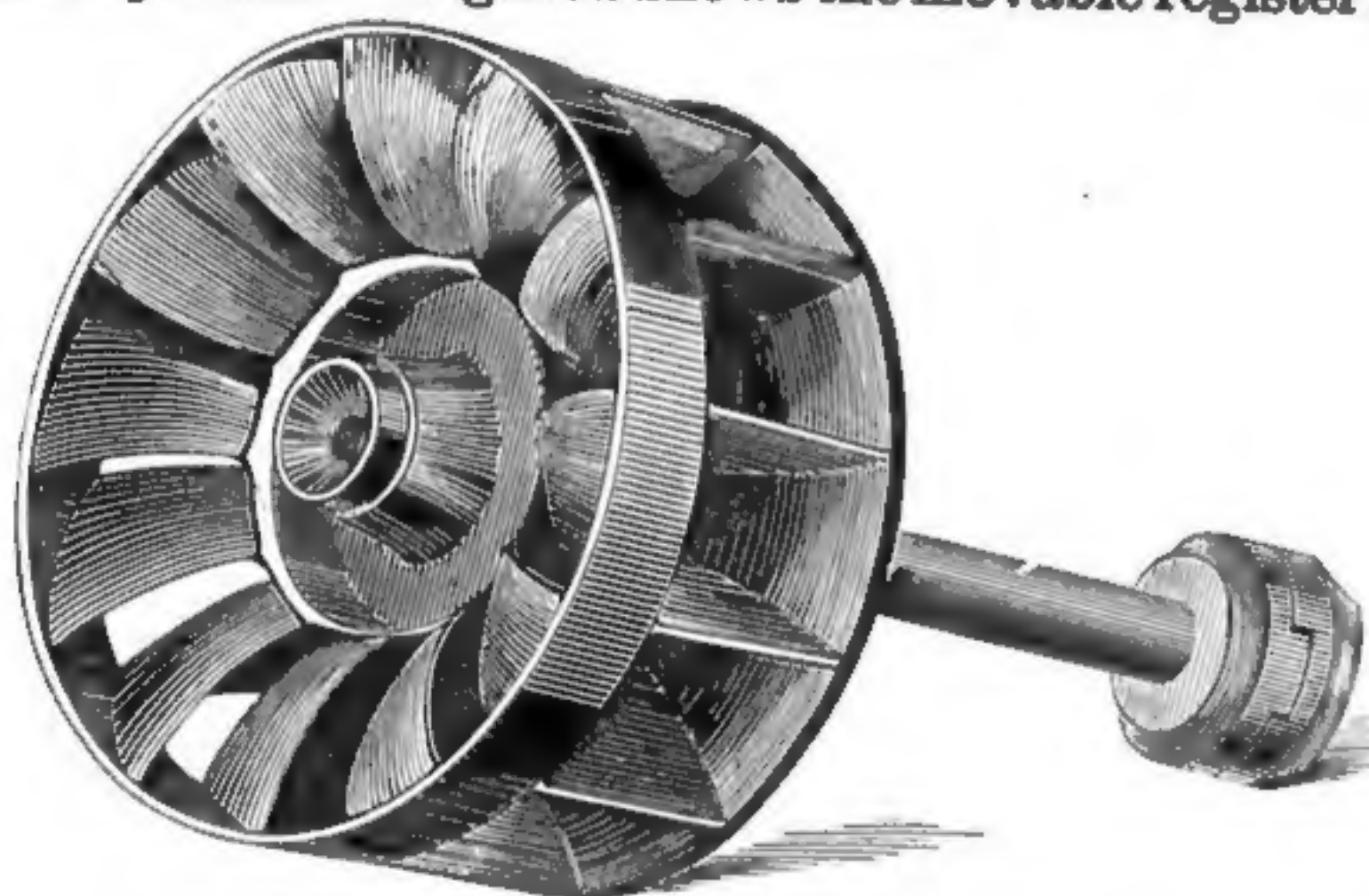


FIG. 3.—THE WHEEL PROPER.

cast in one piece. This gate is so situated as to be shielded from all obstructions. Figure 4 shows the cover of the casing, with the dome through which the wheel-shaft passes. The

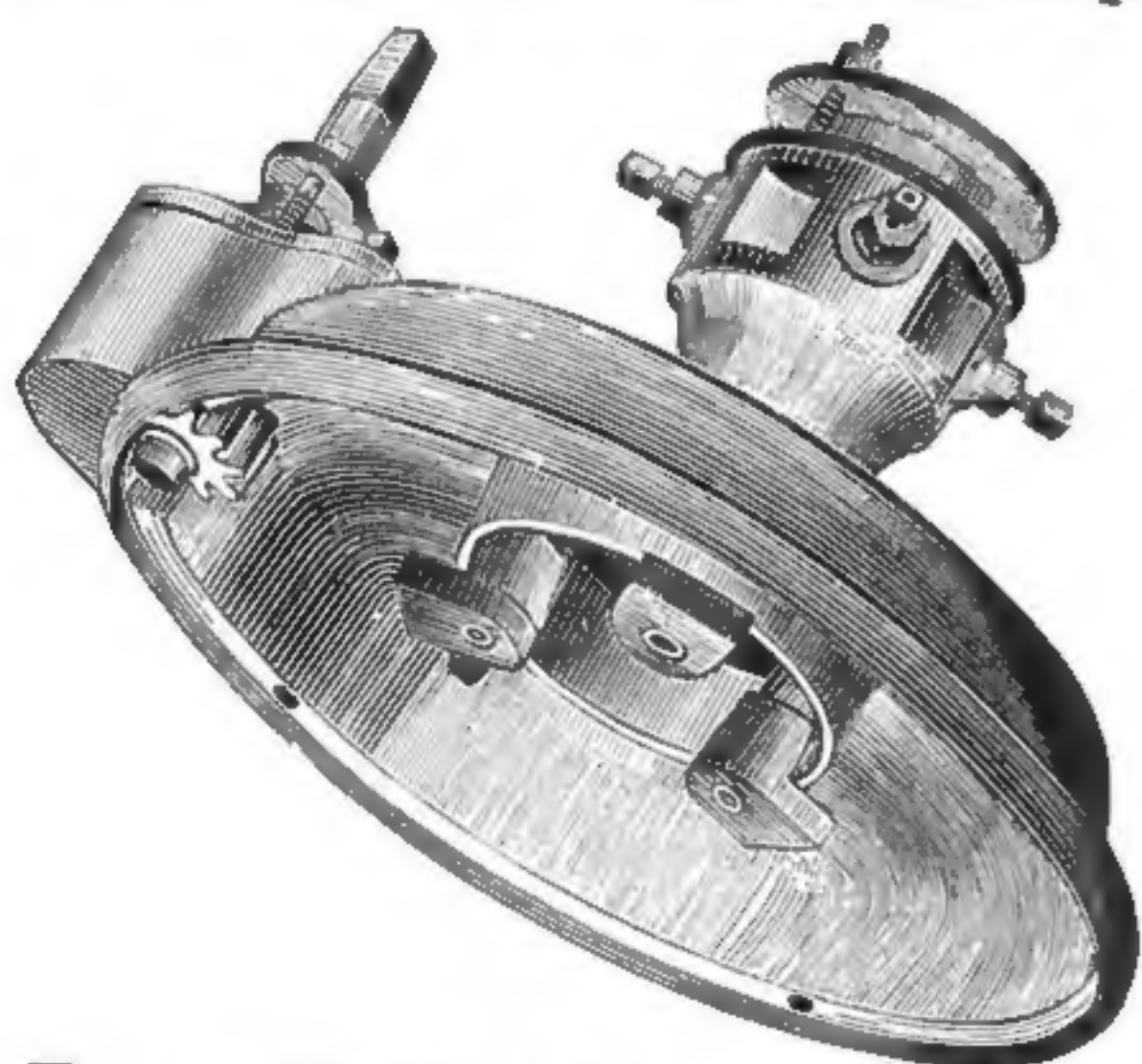


FIG. 4.—COVER OF WHEEL CASING.

complete wheel is shown in Figure 5, ready for shipment. Figure 6 shows the manner in which the wheels are set in the outer cast-iron globe casing. They are made strong enough

to bear any attainable head and fitted up so as to be perfectly water-tight. It is compact and durable, and an iron draft tube of any desired length can be used. This wheel is what is known as the "inside register" pattern, the whole of the

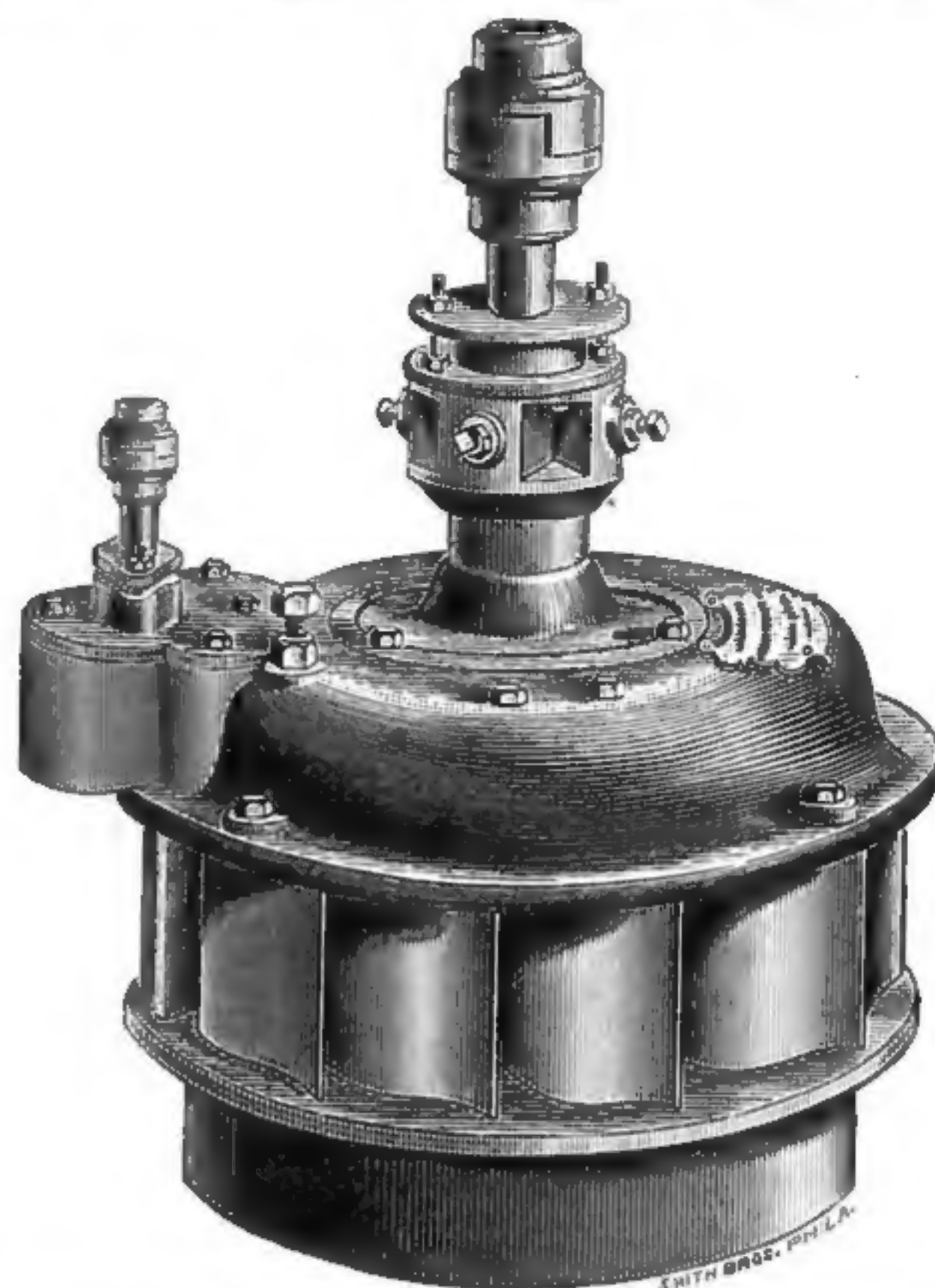


FIG. 5.—ALCOTT'S IMPROVED TURBINE WATER WHEEL.

outer casing being stationary, having no moving parts whatever and being all securely bolted together, protecting the interior working parts from exposure to sand and grit, which so greatly interferes with the working of some other

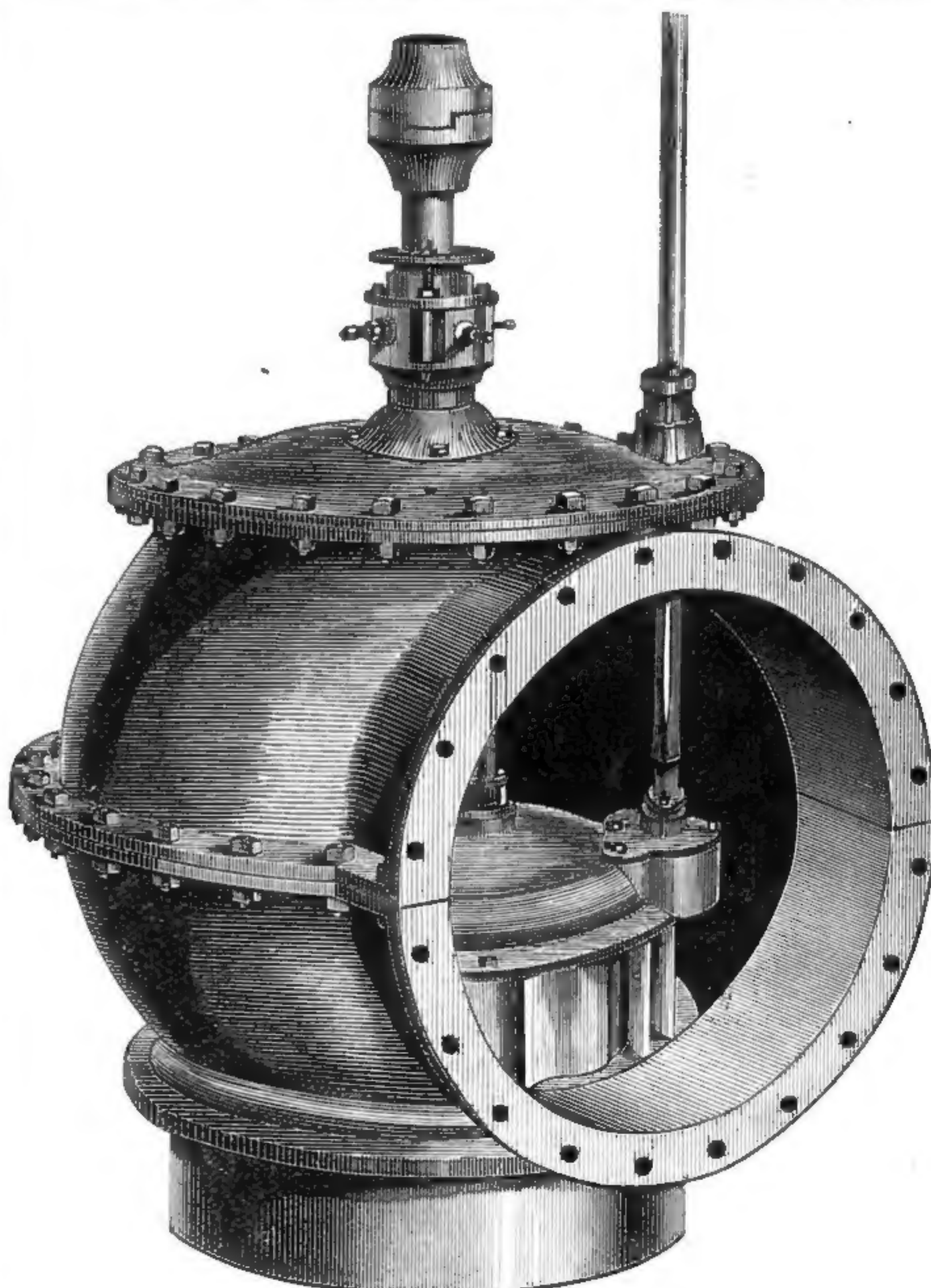


FIG. 6.—CAST-IRON FLUME.

turbines. One valuable feature of this turbine is the advantage it possesses in the economical use of water on variable streams. The makers will furnish all desired information.

MILLING PATENTS.

Among the patents granted December 2d, 1890, are the following:

Thomas F. Gray, Monroeville, O., No. 441,658, automatic grain-scales, comprising the combination, with a supply-

spout having the ends of its sides cut out on a circular line and having the end of its bottom cylindrically concaved, of a cut-off gate formed in the shape of a cylinder segment to form a continuation of said spout-bottom with its flat side and to bear into said concave end with its round side, and provided with circular end pieces which fit into said circularly cut-off ends of the sides of the spout and revolve in the same, forming continuations of said sides, and also the combination, with a vertically-movable counterbalanced weighing-hopper provided with a stop-bracket, of a feed-spout, a cut-off gate pivoted to rock in said spout, a weighted arm or lever adjustably secured to the pivot of said gate to close the same, and an arm secured longitudinally adjustable upon the pivot of said gate, and provided with a downwardly-tilting spring-actuated finger in its end which may rest upon said stop-bracket.

John H. Lowery, Wilson, Mich., No. 441,678, a register for grain-measures, consisting of a casing, a combined ratchet and cog-wheel horizontally mounted, a horizontally-mounted ratchet engaging with the ratchet-teeth of said combined wheel, a lever for moving the same, a cog-wheel vertically mounted engaging with said horizontal wheel, a vertically-mounted ratchet-wheel mounted adjacent to said cogged wheel, a bridge-piece or support placed between said cogged and ratchet wheels, a pawl mounted on said bridge-piece or support and engaging with said ratchet-wheel, a stud on said cogged wheel adapted to engage with said pawl at intervals, and two pointer-arms connected each with the cogged and ratchet wheel and having different movement.

Samuel R. Wheeler, Detroit, Mich., No. 441,912, a grain tally and register.

Frederick W. Howell, Buffalo, N. Y., No. 442,051, a cockle-separator.

George Rieseck, Allegheny, Pa., No. 441,702, a safety device for mills, comprising the combination, with the grinding mechanism and its casing formed with a cylindrical chamber and a vent or escape pipe provided with openings, of a hollow cylindrical valve located in the said chamber and provided with ports for receiving and discharging the ground material and provided with openings registering with one of the openings in the escape pipe, and means for

rotating said valve, whereby the gases from an explosion within the said chamber or valve may escape.

Albert Ball, Claremont, N. H., No. 442,086, a machine for breaking shelled corn, comprising the combination of the outer casing or shell, made in two flanged parts bolted together, the upper of which being flared or hopper-shaped, for the purposes set forth, the cylindrical axle mounted in an axle-box made integral with the discharge-chute, the grinding-cone rigidly secured to said axle and composed of a smooth upper portion and a serrated or toothed lower portion secured thereto, and the internally serrated or toothed grinding-ring removably retained within said upper portion of the outer casing or shell by means of set-screws, all combined and arranged so that the worn parts of the machine may be removed without disturbing the unworn portions.

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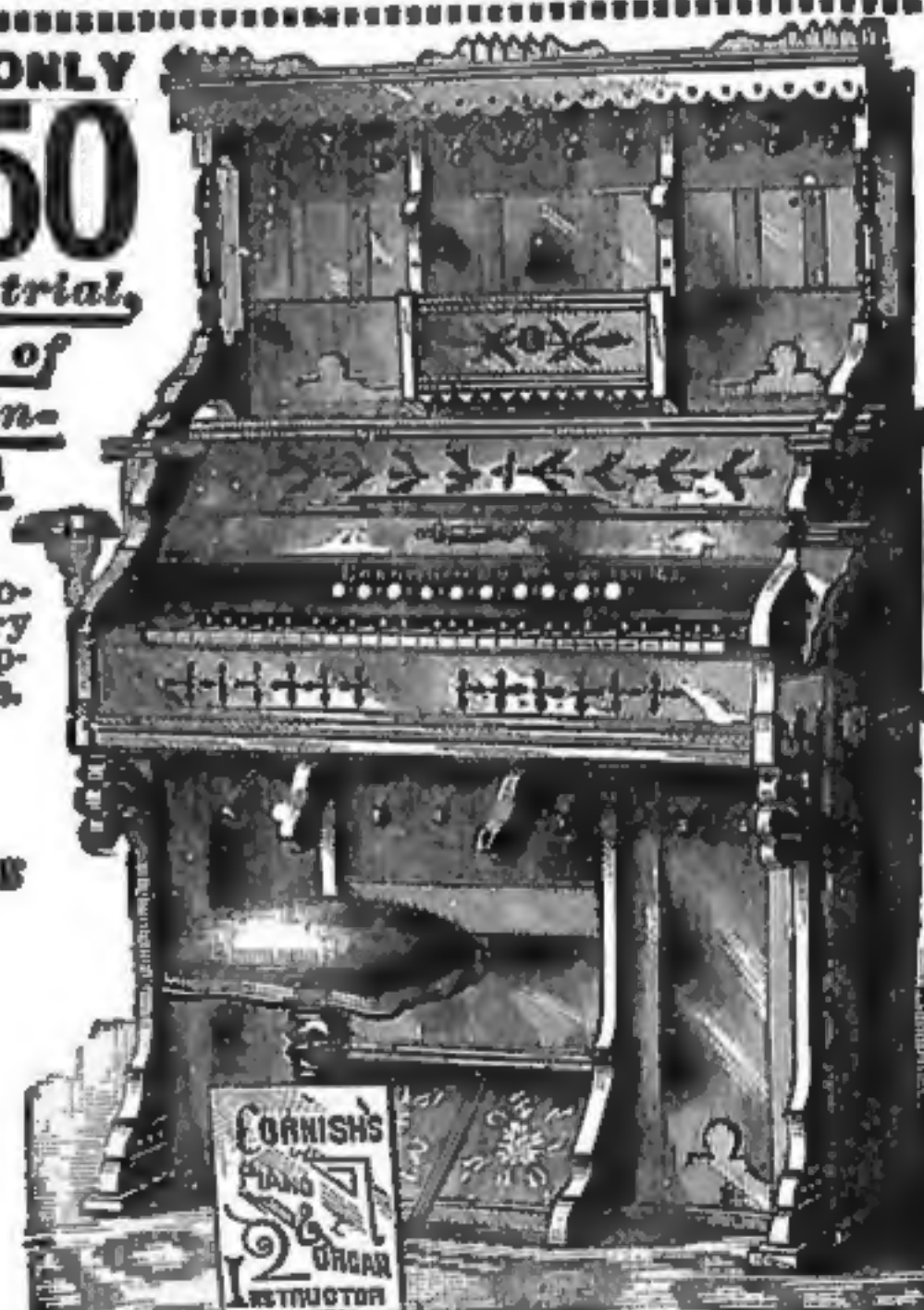
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Practical Notes

PAPER FOR MANY USES.—Paper tough as wood is now made by mixing chloride of zinc with the pulp in the course of manufacture. It has been found that the greater the degree of concentration of the zinc solution, the greater will be the toughness of the paper. It can be used for making gas-pipes, boxes, combs, for roofing, and even for making boots.

GENERAL NOTES.

AN English statistician says that public wealth is made up of 10 items, every one of which can be calculated to a nicety except the value of public works. Thus land is worth 30 times the assessed annual rental valuation. Houses are worth 18 times the rental. Furniture, according to insurance agents, is worth on an average half the value of the house. In the comparison of aggregate values arrived at by this computation our own country comes out ahead. The wealth of France is \$45,500,000,000, that of the United Kingdom \$48,000,000,000, and that of the United States \$68,000,000,000.

MILLS AND MILLERS.

Probably no business is more susceptible of small leakages than milling, and more so under the new process or roller system. In the old system of stone-milling, the process was much more simple and required less detail in its management; consequently the duties of the miller, as far as operating the mill proper, were less arduous and exacting. The principal requirements of the old-time miller consisted in being able to dress a run of stone in a skillful manner and properly to adjust the same to the different kinds of grain that were being ground; and when this was accomplished, the balance of the work was comparatively simple, as the meal was carried directly from the stones to the bolts and there separated from the bran by a single operation. There were also less chances for leakage and waste, and as there was but little detail, from the simplicity of the work, when all were running smoothly, there was but little for the miller to do except occasionally to examine the meal as it came from the stones in order to ascertain that the product was uniform. In mills of moderate size the miller was supposed to find sufficient time to attend to most of the work about the mill, and in most cases the miller was not only the miller, but a general roustabout, performing all kinds of work, from dressing the stone to sweeping out the mill, besides attending to customers.

In the modern mill the case is altogether different, and although he may not be required to be skillful in dressing millstones, yet there are other duties to perform that require as much mechanical skill and judgment. If the rolls do not require dressing, they require the same mechanical skill for their proper adjustment, and close attention in order to keep them in the proper condition to turn out an even and uniform product. Then the additional number of machines, spouts and elevators that the product must pass through all require close attention, otherwise frequent chokes and break-downs, and consequent waste of materials, will be the result. Therefore the modern miller should thoroughly understand the care and management of every different machine in all its details, in order to operate it in connection with others to the best advantage; and to obtain the greatest amount of good product from the least amount of material, every link in the chain must be perfect. Now, where there is so much to look after and it must be constantly watched to avoid chokes, break-downs, consequent wastage and expensive repairs, the miller has no time to spare to pack flour, wait upon customers, and take the place of a general roustabout. And wherever such is the case, it is only done by neglecting other duties that legitimately belong to him, which in the

end always works to the disadvantage of the proprietors and costs more in waste and repairs than would pay the wages of an intelligent laborer for that purpose.

The fact is, many of the moderate sized mill-owners attempt to run their mills too cheaply, and while it is necessary for not only flour-mills but all other manufacturing establishments to practice economy so far as is consistent, yet there is a possibility of carrying economy so far as to become "penny wise and pound foolish"; and that will usually be the case when the miller in charge of a mill is required to neglect his legitimate duties in care of the machinery in order to save the wages of a common laborer, not knowing when a journal may run dry and damage the box, or a spout clog up, or some other accident occur that might cause a serious break-down in some of the machinery and stop the mill in consequence for several days. A writer in a well-known milling journal, speaking with reference to the duties of a miller in moderate sized mills, while he deprecates the custom of making the miller a general roustabout, says: "There is, though, one more office that the miller can fill, and in most cases ought to fill. He ought to be the wheat buyer, or at least all samples of wheat should be submitted to his inspection before being purchased. If he fills his position acceptably, he should be a much better judge of wheat than the average owners of mills. He ought to know more about its real value and fitness for flour-making, and the kind of flour best adapted to, much better than others having no practical knowledge of flour-making. For that reason he should be intrusted with that duty where the place is not already filled by an expert at the business of wheat buying."

There is no question that this is sound doctrine, and the same is applicable not only to milling, but to many other kinds of manufacturing. There is no question that the blacksmith who forges, or the machinist who turns, planes or otherwise works a certain kind of iron, is better able to judge of its qualities or fitness for certain kinds of work than his proprietor, who has no practical knowledge or other means of judging except from its external appearance. The same rule is applicable to all raw materials, wheat not excepted; and a sample of the same submitted to one who is not a practical miller may to all external appearance be of good quality, yet to the eye of the experienced miller it may present defects that to others might not be noticed. And if the practice of submitting all samples of wheat that is offered to the head miller for his inspection were general, there is no doubt that much less wheat of an inferior quality would be purchased, and the product of the mill would be far superior to that which is sent out by many of the moderate sized mills.

—C. R. Tompkins in the New York "Mechanical News."

PERSONAL MENTION.

Editor Chas. H. Mortimer, of the *Electrical, Mechanical & Milling News*, Toronto, Ontario, Canada, has sold that excellent journal to his brother, Mr. A. G. Mortimer, publisher of the *Canada Lumberman*, who will make it a special milling and grain trade journal. The new owner will change the name to *The Canadian Miller and Grain Trade Review*. The retiring editor, Mr. Chas. H. Mortimer, will start a new paper, *The Canadian Electrical News and Steam Engineering Journal*. Success to all our Canuck cotemporaries.

Mr. James F. Hobart, well known to our readers, has become editor of the *American Journal of Railway Appliances*. He will fill the position satisfactorily, as he is a fine mechanic and an experienced writer on technicals.

CATARRH.

CATARRHAL DEAFNESS—HAY FEVER. A NEW HOME TREATMENT.

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate*.

Sufferers from Catarrhal troubles should carefully read the above.

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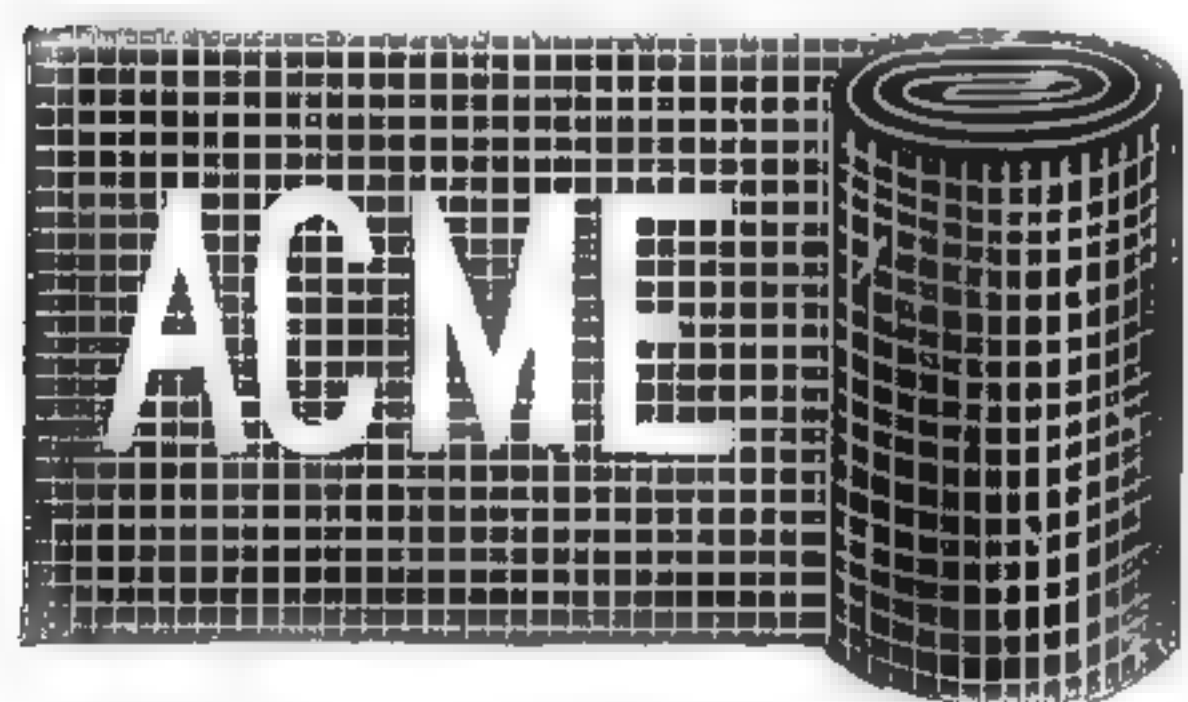
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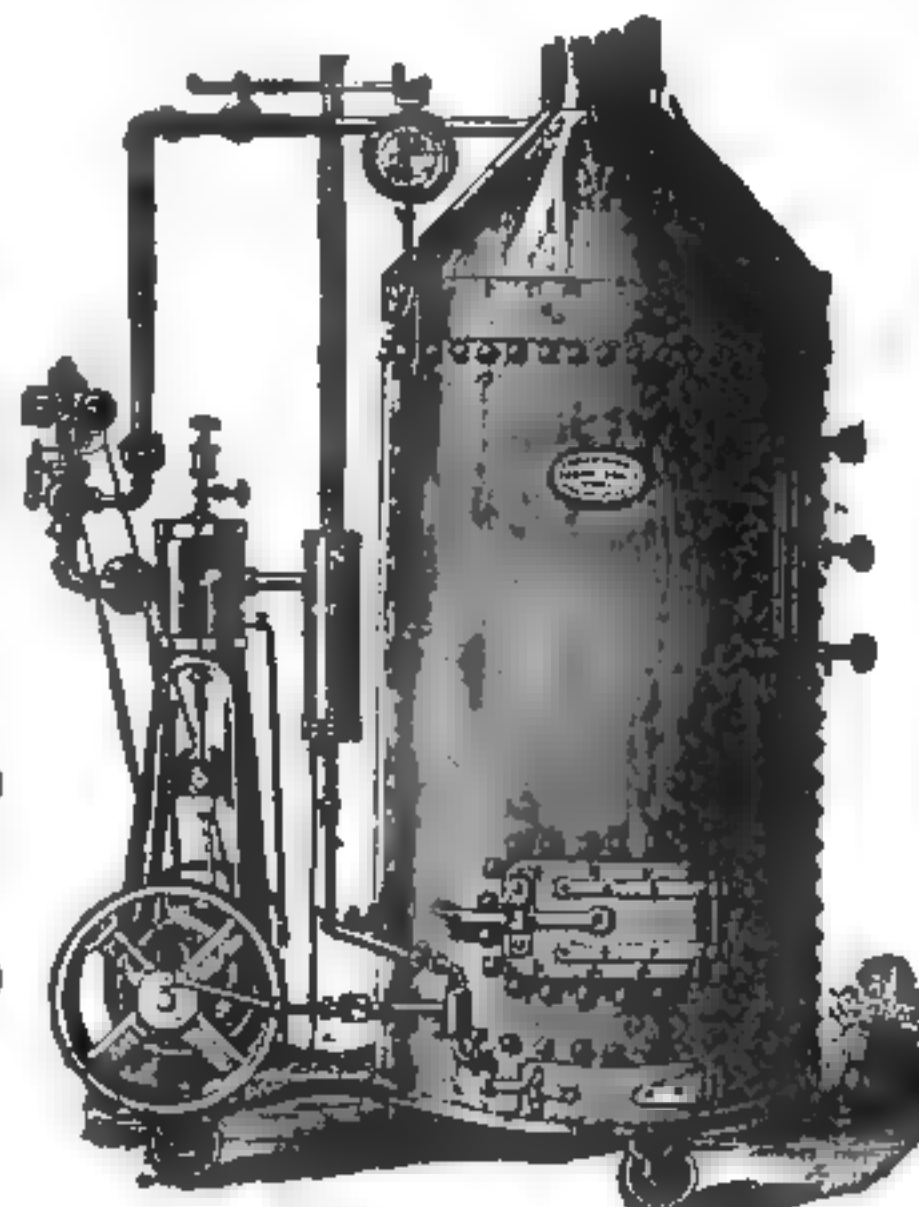
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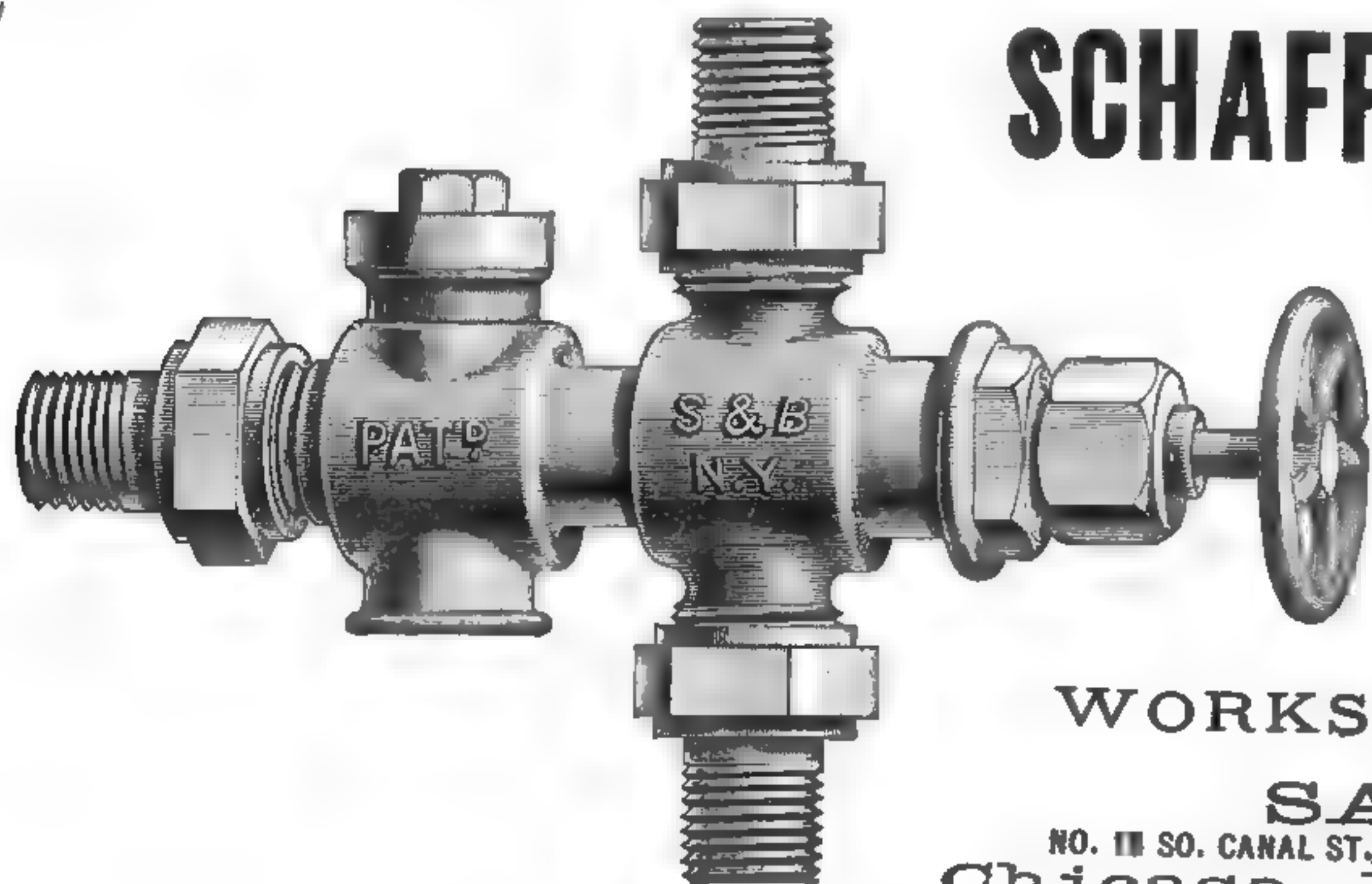
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 Durbin Bros., Graysville, Pa., remodel to rolls.
 Witz & Holt, Staunton, Va., build a flour-mill.
 P. Herr, Orrstown, Pa., builds a 25-barrel mill.
 P. F. Causey, Milford, Del., builds a roller mill.
 G. Karewski, miller, Jacksonville, Ore., is dead.
 G. K. Enos, Belfast, Md., builds a 30-barrel mill.
 J. H. Fisk, Huntington, Mass., starts a grist-mill.
 Shepard & Son, flour-mill, Waterloo, Ind., sell out.
 J. Ulrich, New Tripoli, Pa., builds a 30-barrel mill.
 D. Shepp & Co., Tamaqua, Pa., improve flour-mill.
 B. F. Charles, Clear Spring, Md., improves his mill.
 The Wheelers, Henderson, Ky., project a flour-mill.
 Whedon Bros., South Hartford, N. Y., improve mill.
 D. Kistler, Sitler, Pa., builds a roller buckwheat mill.
 L. H. Beers, Cessna, Pa., builds a 30-barrel roller mill.
 G. W. Hagey, Martinsburg, Pa., built a 60-barrel mill.
 J. M. Hill, corn-mill, Ashland, Ky., moves to Greenup, Ky.
 J. O. Morris, Baltimore, Md., rebuilds his burned flour-mill.
 R. Wells, Farmington, W. Va., builds a 35-barrel roller mill.
 Geo. A. Trafton & Co.'s feed-mill, Watsonville, Cal., burned.
 G. W. Swor, Buchanan, Tenn., is building a roller flouring-mill.
 C. R. Leonard & Co., Easton, Md., build an 80-barrel roller mill.
 The old Chestertown, Md., grist-mill will give place to a new roller mill.
 L. A. Smith has bought and will operate the Verbena, Va., flouring-mill.
 R. C. Mansfield, Cat Creek, Ky., wants an outfit of machinery for a roller mill.
 Dundee, N. Y., men will form a \$100,000 stock company to build a roller flouring-mill.
 Conant & Son's flour-mill, Terre Haute, Ind., burned; loss \$12,000; insurance \$5,000.
 John Neiman, grist mill, Weiglestown, Pa., is succeeded by R. G. Livingston, agent.
 J. A. Foote, Iuka, Miss., will build a grain-elevator at Riverton, Ala.; he wants machinery.
 John Pye's roller mill, Ontario, N. Y., burned with contents; loss \$9,700; insurance \$4,000.
 H. W. Briggs & Co.'s grain-elevator, Taunton, Mass., burned; loss \$28,000; insurance \$16,500.
 Stone, Dodd & Co., Viola, Ark., will build a short-system roller mill; they want machinery.
 McQuiston & Co.'s flouring-mill, Jamestown, Pa., burned; loss \$12,000; partially insured.
 J. A. Foote, Iuka, Miss., has formed a stock company to build a grain-elevator in Riverton, Ala.
 J. L. Hayal and others, Spring City, Tenn., will form a stock company to build a flour-mill.
 Hertzog & Singley, millers, Columbia, Miss., dissolved, Willis Hertzog going on with the business.
 McCully & Kimball, flour-mill, Joseph, Ore., dissolved and are succeeded by the Joseph Milling Co.

Geo. W. Colver, of Colver & Huston, millers, Lafayette, N. J., is dead.
 R. C. Mansfield, Cat Creek, Ky., will remodel his flouring-mill to rolls at once; he wants machinery.

T. & B. G. Hudnut, hominy mills, Mt. Vernon, Ky., propose to move their plant to Henderson, Ky.

E. M. Kelley and others, Nashville, Tenn., incorporated the Liberty Mills Co., to build a flour-mill.

M. A. Frazier & Co.'s grist-mill and other property, Baltimore, Md., burned; loss \$20,000; partly insured.

The Davis grist-mill, Almond, N. Y., owned by Mr. Scott, of Canaseraga, N. Y., burned; loss total; insurance \$1,000.

Pennsylvania millers say the new buckwheat requires over 4 bushels of grain to make 100 pounds of flour, against 3½ bushels ordinarily.

Jas. Allen and O. C. Uckenstein, millers, Greenport, N. Y., dissolved, Mr. Uckenstein selling his interest to Mr. Allen, who will operate.

The Empire Elevator, Mill & Warehouse Co., Memphis, Tenn., will build a 600-barrel corn-meal mill and a 200,000-bushel grain-elevator.

The Buxton grist-mill, Goshen, N. H., has been sold to Mrs. F. E. Shaw, of Lowell, Mass., who leased the property to S. L. Pike for three years.

J. C. Smith and others, Newark, N. J., incorporated the J. C. Smith Co., capital stock \$200,000, paid in \$150,000, to manufacture and sell grain products.

A miller of Oothcaloga, Ga., found the wheels in the mill clogged so that they would not work. After taking 350 pounds of eels out the wheels turned once more.

Essmuller & Barry, St. Louis, Mo., have placed an order with the Case Mfg. Co., Columbus, O., for 4 pairs of rolls to be placed in the mill of L. W. Buschman & Son, La Grange, Mo.

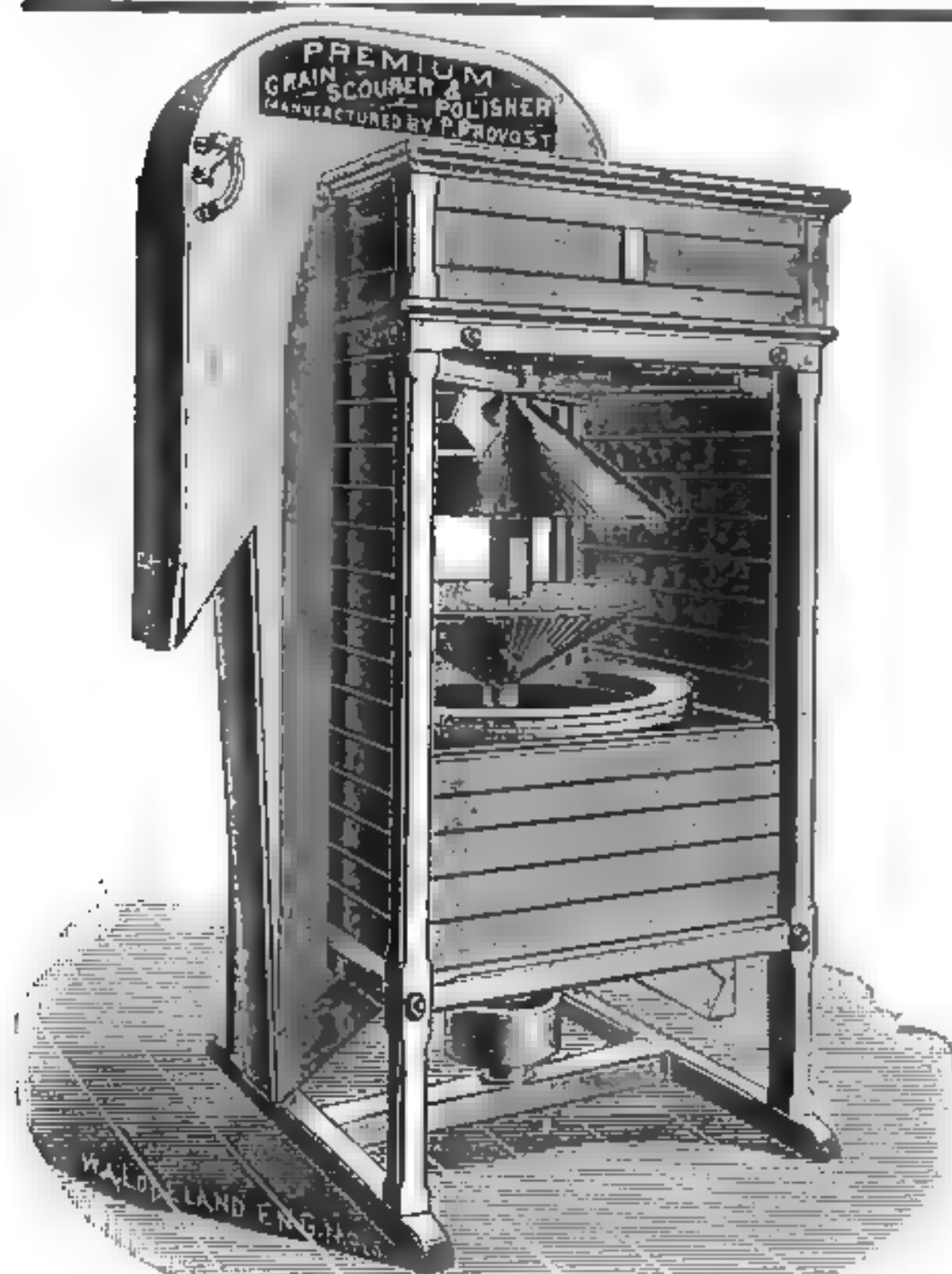
T. C. Alcott & Son, Mount Holly, N. J., have recently received orders for their improved turbine water-wheel from the Box Elder Mill Co., Bingham City, Utah, and Jonathan Webster, Woodstown, N. J.

Graham & Snider, Kingwood, W. Va., have placed their order with the Case Mfg. Co., Columbus, O., for rolls, scalpors, meal aspirators and purifiers and all necessary supplies for a complete corn-meal and buckwheat mill on the Case system.

The Case Mfg. Co., Columbus, O., have received the contract of the Staunton Steam Roller Mill Co., Staunton, Va., for all rolls, scalpors, flour-dressers, purifiers, centrifugals and other machinery and supplies necessary for a complete 200-barrel mill on the Case system.

C. O. Bartlett, Cleveland, O., recently made the following sales of his famous "Economic Magnetic Separator": Three to Huntley, Cranson & Hammond, Silver Creek, N. Y.; one to the Cambridge Mfg. Co., Cambridge, Md.; four to J. Kimball, Parksville, N. Y.; three to the J. B. Allfree Milling Co., Indianapolis, Ind.; six to C. T. Hanna, Pittsburgh, Pa.; one to the McDonald & Co., Wilmington, Cal.; one to the Alliance Milling Co., Alliance, Neb.; one to J. C. Fredlock & Co., Piedmont, W. Va.; one to the Cedar Springs Milling Co., Cedar Springs, Mich.

A report from Tacoma, Wash., says: Never before in the history of Washington has there been such an immense wheat crop as that of this year. East of the Cascade Mountains, it is estimated, the product is over 16,000,000 bushels, most of which is threshed. The elevators, warehouses and box cars along the railroads are filled. The inability of the railroads to obtain motive power and cars enough to move this enormous quantity of grain to market not only compels the elevator men and other buyers who have advanced money on the wheat to wait for a return, but also prevents the farmers who have not yet sold their crops from realizing on them. The farmers believe that there is collusion between the railroads and the elevator men to force a lower price for the wheat. So intense has become the feeling among the farmers against the railroad companies that they, through the Farmers' Alliance, threaten to build an independent line in competition with the Northern and Union Pacific roads to Puget Sound. It is proposed to urge the coming State legislature to authorize the issue of State bonds to build such a road, the State to own and control it. The railroads, spurred by this movement, are hurrying forward more locomotives and cars for the moving of the crop.



THE PREMIUM GRAIN SCOURER AND POLISHER.

This machine is guaranteed to do more and better scouring than any other machine in existence. Is easily set up, requires little or no care, except oiling.

Samples of Work Sent on Application

Address for full particulars,

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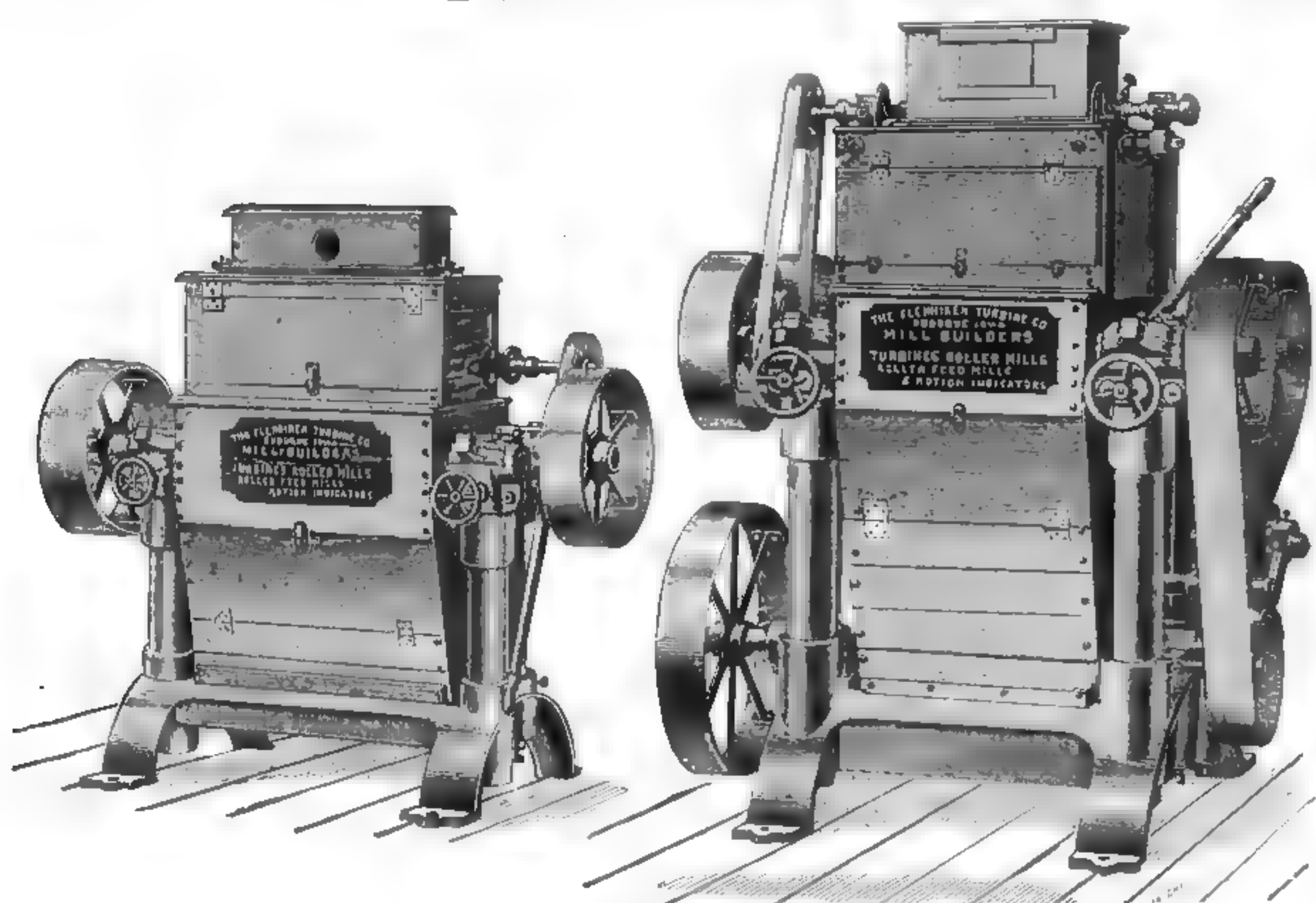
MINNEAPOLIS, MINN.

ONE REDUCTION TO THE FRONT!

*Ye jolly millers, one and all,
Who granulate with burrs,*

A Moses has Come to Deliver You from Egypt. Cease Trying to Make Bricks without Straw. The Red Sea of Expense Has Been Divided.

The Wilderness of Reductions has Been Shortened. There is Manna in Abundance for Those Who Believe. Listen to the Glad Tidings of Great Joy!



ONE REDUCTION ON ROLLS IS A SUCCESS! Two years of experience in a dozen States, with all kinds of Wheat and diversified climates, has justified us in recommending its adoption in place of burrs in each and every case, whether for grinding Wheat, Rye or Buckwheat. We have perfected Roller Mills, Bolts and Scalpers peculiarly adapted to the wants of Small Mills, and all our machines *infringe no patents*, and no claims are made that they do.

Having consummated a bargain with **MR. O. C. RITTER**, the author and patentee of **One Reduction**, which gives us the *exclusive right* to construct mills under his patents, our patrons in the future will receive a license from Mr. Ritter.

SPECIALTIES! { Graham Roller Mills, Round Reels and Scalpers, Sectional Round Reels, Grain Separators, Motion Indicators. Before buying any of these machines send for our prices and descriptive circulars. } **SPECIALTIES!**

Second-Hand Machinery, and Bargains in Every Line.

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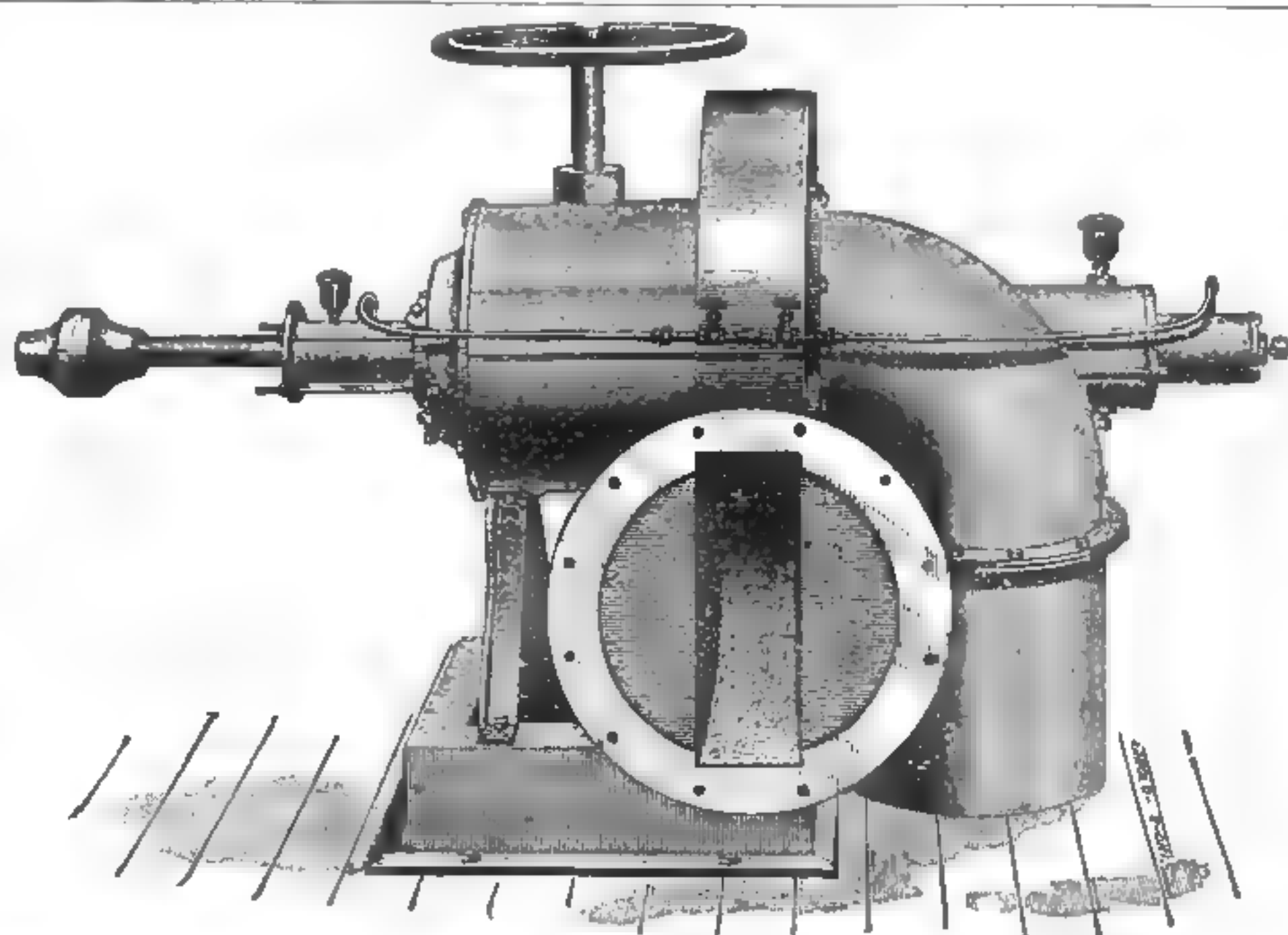
The Best Turbines!

**VERTICAL OR HORIZONTAL,
With or Without Iron Flumes,**

—BUILT BY THE—

Flenniken Turbine Co.

DUBUQUE, - IOWA.



EUROPEAN ECHOES.

A PARIS letter says: "The main reason for the improvement, appears to be that the government intends to bring in a bill by which all fortified towns shall have their stocks sufficiently reconstituted to last for two months, which would mean that large quantities of both wheat and flour would be purchased."

ROUMANIAN reports by mail to November 1 contain the following: Our wheat crop was above the average, but the extraordinary large exports in August and September, especially for the United Kingdom, have absorbed the greater portion of our stocks, which are now very small both in the ports and in the interior. In these two months, in fact, as much wheat was exported as in previous whole season. The rise in the Russian rouble and the high prices of American grain were the main causes of this activity.

SAYS Professor A. E. Blount: "The objects attained by crossing wheats, or hybridization, as it is improperly called, are manifold. It improves the plant in various ways. It makes it more vigorous, less liable to the attacks of vegetable parasites; the straw is stiffer, better glazed and more healthy; the leaves better feeders, as well as the roots; the glumes are more compact and better filled; the heads longer, and fertilization takes place more surely and successfully. Secondly it improves the grain, makes it more plump, heavier, harder and consequently better suited to milling purposes; the bran is made thinner, more free from fluff and cellulose, the two obstacles which interfere so materially with milling; the grain is entirely transformed, being made to contain more or less gluten, starch and other elements that make good flour."

THE London "Miller" describes Mr. J. Murray Case's new roll corrugation, patented in the United States and Great Britain on May 20th, 1889, as follows: "The object of Mr. Case's invention is to provide a roller-mill with grooved chilled iron rolls which will produce a higher percentage of coarse granular middlings than will such machines as hitherto arranged or constructed, and also prevent undue breaking or cutting up of the bran, and enable the work to be done with a less number of successive breaks (or pairs of rollers) than hitherto. This invention is carried out by providing on the periphery of one of the rolls of a pair, longitudinal ribs, or teeth, or projections with cavities or spaces between for holding the middlings. This roll is driven at a lower speed than the other roll of the pair, which may be of the ordinary construction, having a serrated periphery. Each tooth or rib may be subdivided longitudinally, or if desired groups of teeth may be arranged, at suitable distance apart, round the roller. The distance between the teeth or ribs or group of teeth or ribs of the slow moving roll is preferably about one quarter of an inch. The teeth or ribs project above the general surface of the roller, just sufficient to form shoulders for the grain to catch against and hold it while the fast roller effects its reduction."

SAYS the London "Miller" of November 17th: Variable, yet mainly fine, autumnal weather has been favorable to ploughing and seeding the land, while there has been rain or clinging dampness in the air that would mix with and soften wheat enough to put it out of milling condition. On this account and the date of the season business has halted, and to halt is to give buyers opportunities of picking off straggling and weak holders. Thus in the past week there have been occasional sales reported at 3d. to 6d. per quarter less money for wheat cargoes and some landed parcels. As to the money market, it has been between the upper and nether millstones or the steel rollers that break down stiffness and confidence. Luckily the money squeeze has not found grain-dealers speculating, and while trade has been slow and value rather weak, the general situation has kept healthy. Reports of the winter wheat seed bed and plant growth are favorable, and the great speculative markets have been dis-

turbed to a small degree in favor of buyers. A good deal of rain has fallen in France, and the temperature is some five degrees above the average for the time of the year. Consequently the October sown wheat grows too fast, and a winter check, perhaps sufficiently dangerous to weaken the plant, seems to be likely so soon as normal cold appears. Wheat is rather dearer on the week at Paris and Rouen. In Germany wheat and rye remain quiet, the latter at a very high price in comparison with wheat, a circumstance which favors a high consumption of the "white bread" this season. There have been heavy shipments from the Azoff ports during the past fortnight, but winter has set in over the greater part of Russia, and exports are likely to be materially reduced very shortly. Some of the local markets report a rise in wheat prices.

BUFFALO'S GRAIN AND FLOUR TRADE.

The eastward movement of flour and grain from the west through Buffalo for the month of November, 1890, shows a decrease of 180,336 barrels in the receipts of flour, and a decrease of 3,227,503 bushels in the receipts of grain, estimating flour as wheat, compared with the same month last year. The following shows the imports of flour and grain into Buffalo, by lake, for the month of November, and from the opening of navigation to November 30th, 1890, as compared with those for previous years:

FOR THE MONTH OF NOVEMBER.			
	Flour, bbls.	Grain, bu.	Grain, inc. Flour, bu.
1890.....	1,071,950	9,957,241	15,316,991
1889.....	1,252,286	12,283,064	18,544,494
1888.....	866,681	7,813,398	12,146,798
1887.....	547,238	10,808,761	13,544,951
1886.....	668,620	7,546,565	10,889,665
1885.....	608,240	5,111,708	8,152,908
FROM OPENING TO NOVEMBER 30.			
	Flour, bbls.	Grain, bu.	Grain, inc. Flour, bu.
1890.....	5,903,493	87,029,214	116,546,709
1889.....	5,001,855	88,527,557	118,596,832
1888.....	4,978,375	72,501,980	97,393,855
1887.....	3,778,173	82,999,647	101,890,512
1886.....	4,326,346	71,403,223	93,043,953
1885.....	2,783,558	48,909,371	62,827,191

COTEMPORARY COMMENT.

The people are heartily tired of unsettled and uncertain rates, and realize that the demoralization of railroad business and the depression of railway securities incident to the present situation is an evil of no small magnitude, from which relief would be a great boon.—*Kansas City "Commercial."*

It is a wise move to place the executive committees of various district associations in contact with one another on all details affecting organization. The expense and difficulty of getting scattered members together for action render work by them slow and unsteady. The new plan will favor quick work, and, coming from men in touch with the wants of a district, will closely represent them, especially as they may be instructed at district meetings.—*Indianapolis "Millstone."*

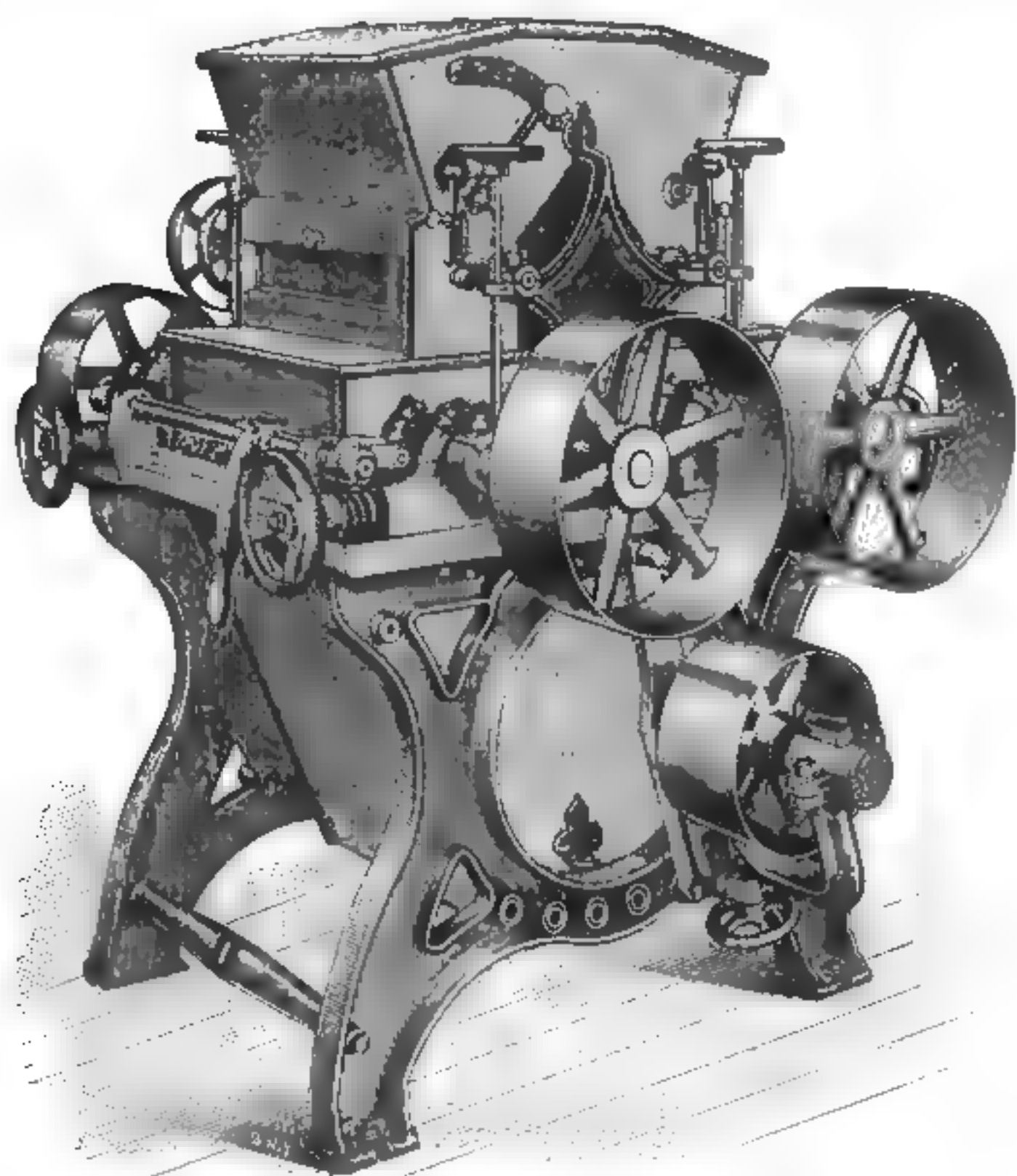
Over 115,000,000 hogs have been received in this city in the past 25 years.—*Chicago "Daily Business."* Great Jehogofat! Why not re-christen the town "Cheekhoggog"?

A NEW METHOD OF TREATING DISEASE.

HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians, celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

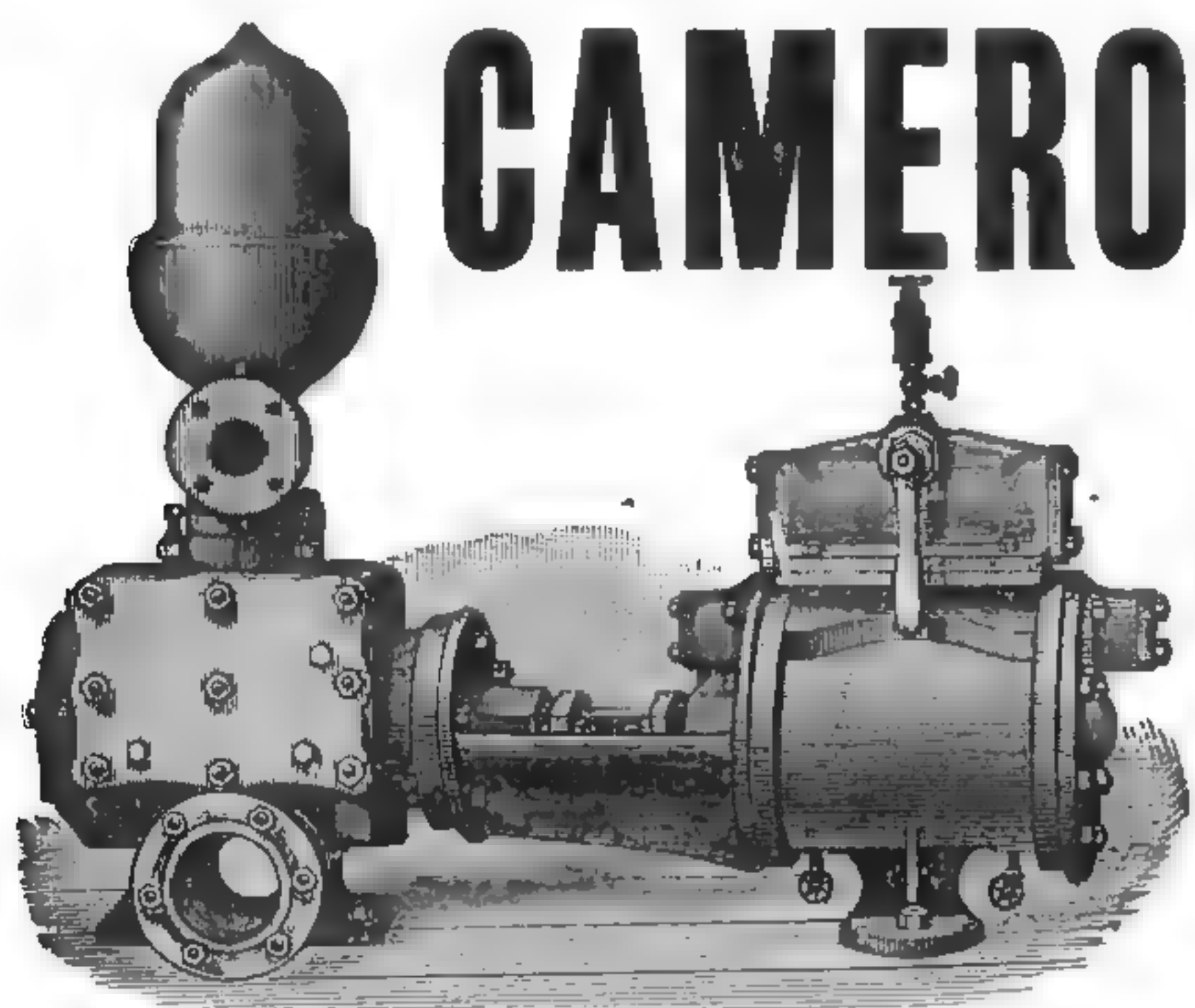


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Plans and Specifications Furnished
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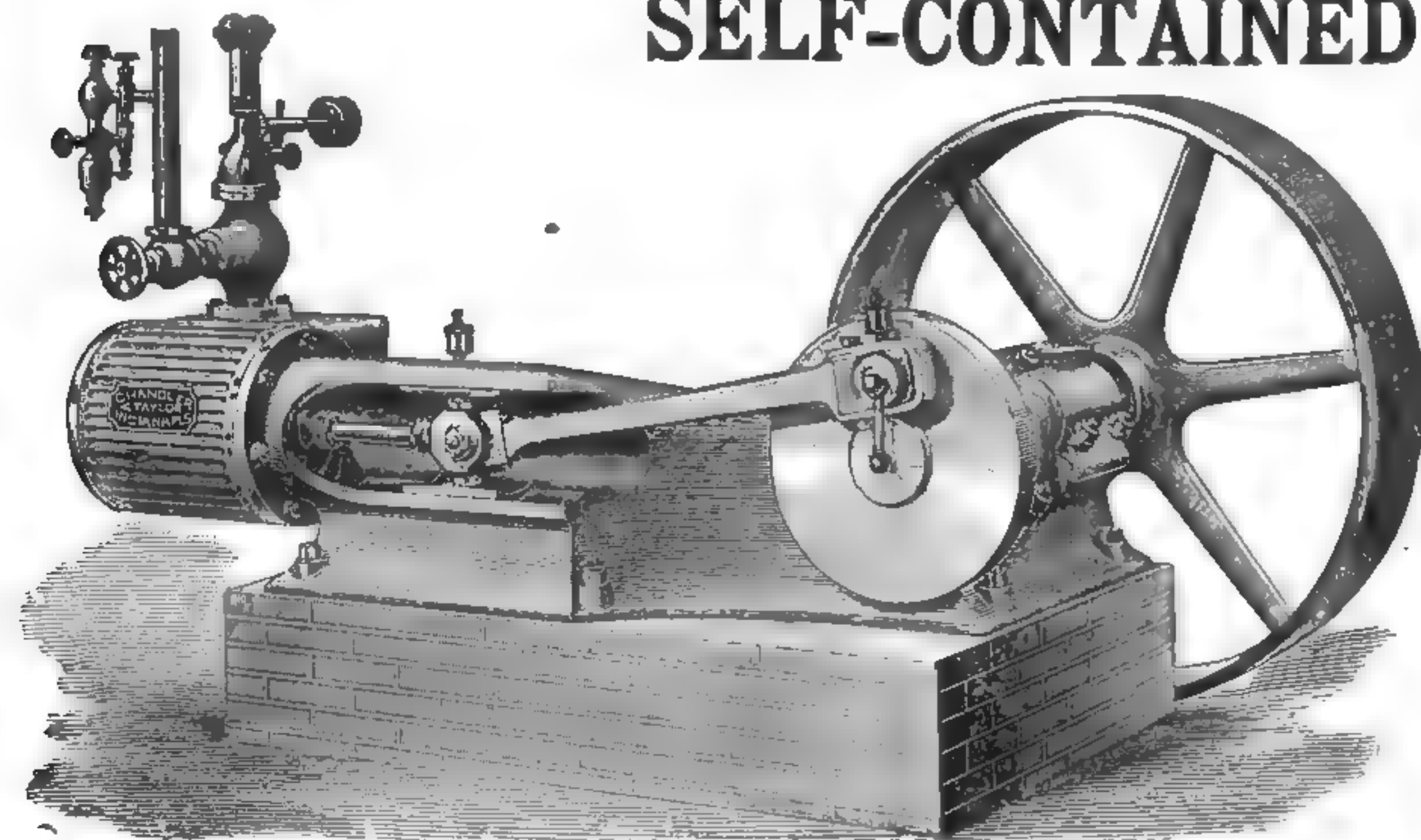
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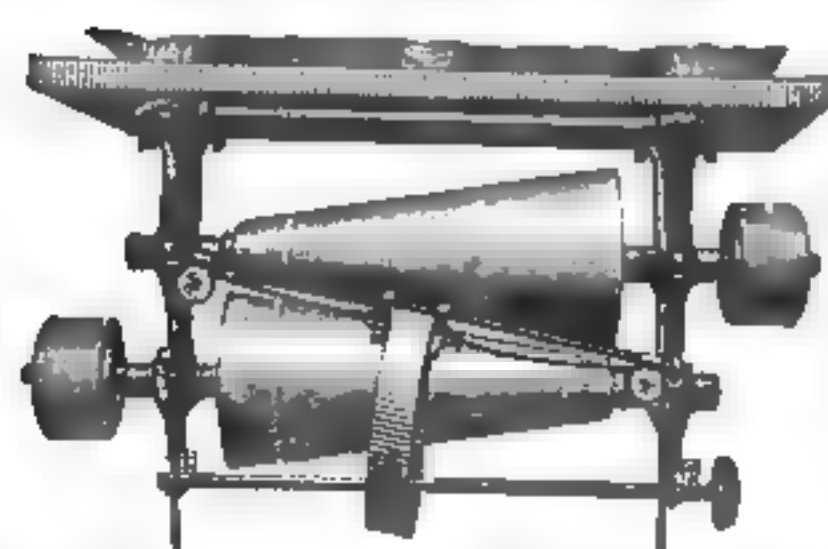
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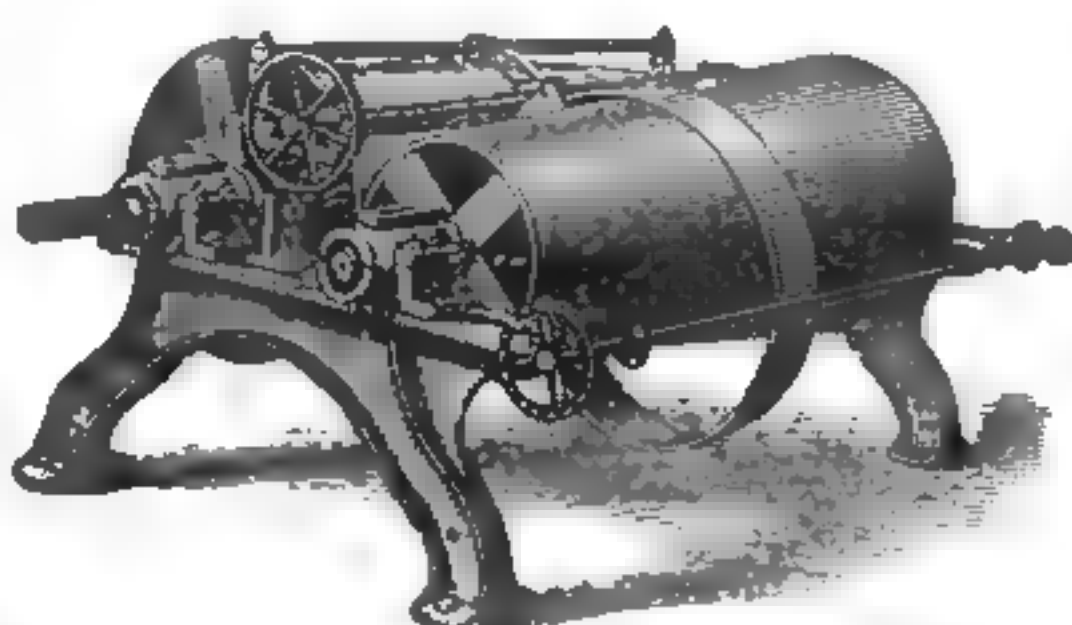
Engines, Saw-Mills and Drain Tile
Machinery a Specialty.

THE EVANS FRICTION CONE & FRICTIONAL GEARING

"PATENTED."



This cut represents a set of hanging cone pulleys. This pattern is intended for that class of machinery that stops and starts at the same speed, and at the same time be able to change the speed more or less while running. These cones are also fitted with a governor where a steady motion is required and the initial power is



fluctuating. All sizes made from 1/2 Horse Power to 50 Horse Power. SEND FOR ILLUSTRATED CATALOGUE.

EVANS FRICTION CONE CO., 85 Water St., BOSTON.



SHIPPERS
CAN SAVE TIME
AND TROUBLE
AND CASH

BY USING
BARLOW'S
PATENT
MANIFOLD
SHIPPING
BLANKS
SEND FOR
SAMPLE SHEET AND PRICES
BARLOW BROS. GRAND RAPIDS, MICH.



OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., Dec. 6, 1890.

Saturday of last week was a day of dull and lower markets, on better expected western receipts, and on lack of demand in spite of the advance in silver. December wheat closed in New York at \$1.02½, January at \$1.04½, February at \$1.05½, March at \$1.06½, and May at \$1.06½. Receipts at Atlantic ports were 103,029, exports 190, and options 1,488,000 bushels. December corn closed at 60½c., January at 60½c., and May at 60½c. Receipts were 159,978, exports 66,368, and options 540,000 bushels. December oats closed at 49½c., January at 50½c., and May at 51½c., with receipts 181,133, exports 19,187, and options 125,000 bushels. Wheat flour was steadily held at the late advance all around, and exporters were making inquiries. Receipts included 19,414 sacks and 42,845 barrels, and exports 31,440 sacks and 20,812 barrels. The minor lines were generally featureless.

Monday was a day of mixed markets, opening lower on the condition in Wall street and larger receipts in the West, and closing higher on large buying of wheat by Hutchinson in Chicago. Corn and oats followed up. December opened with fair activity all around. December wheat closed at \$1.03½, January at \$1.04½, February at \$1.05½, March at \$1.06½, and May at \$1.06½. Receipts were 112,754, exports 12,205, and options 3,554,000 bushels. New York stocks footed 3,865,000 bushels. Liverpool stocks were 1,612,000 centals, against 2,235,000 do last month, or a decrease of nearly 333,000 centals, which is divided as follows: 100,000 quarters white, 200,000 red, 12,000 Indian and 84,000 low grades, or 96,000 quarters, against 465,000 a month ago. December corn closed at 60½c., and January and May at the same figure. Receipts were 95,126, exports 25,954, and options 896,000 bushels. Liverpool stocks by cable showed 67,000 quarters decrease for the month, or 90,000 quarters of American and 102,000 quarters of round, which includes the Danubian and River Plate. Official stocks are 923,000 centals, against 1,246,000 a month ago. December oats closed at 49½c., January at 50½c., and May at 51½c. Receipts were 115,807, exports 23,413, and options 230,000 bushels. Wheat flour was dull and unchanged, with buyers holding off. Receipts were 28,930 sacks and 40,472 barrels, and exports 8,974 sacks and 16,348 barrels. Liverpool stocks were 92,000 packages against 87,000 a month ago. Fancy winter straights sold at \$5.00 for best brands and \$4.90 bid in fair lines; spring patents sold at \$5.35 for choice; rye mixtures at \$4.25. City mills were quoted at \$5.15@5.25 for lines and lots. The visible supply in the United States and Canada was:

	1890.	1889.	1888.
Wheat.....	24,527,826	31,472,359	36,082,738
Corn.....	3,144,494	6,204,128	7,056,076
Oats.....	3,359,302	5,116,954	7,557,016
Rye.....	578,429	1,262,331	1,654,236
Barley.....	4,750,468	2,992,573	2,329,903

Tuesday was a generally dull day, with Hutchinson leading the boomers. The markets were higher and unsettled, with tighter money in the West. December wheat closed at \$1.03½, with receipts 78,496, exports 49,384, and options 1,952,000 bushels. December corn closed at 61c., with receipts 108,000, exports 61,247, and options 696,000 bushels. December oats closed at 49½c., with receipts 173,688, exports 16,118, and options 200,000 bushels. Wheat flour was unchanged. One estimate made the New York stock of flour on December 1st 279,400 barrels, against 167,770 last year, and 267,150 last month, of which 133,800 barrels are winters and 145,600 are springs. Receipts were 26,372 sacks and 48,659 barrels, and exports 4,760 sacks and 4,954 barrels. All the minor lines were featureless. The day was one of speculative tendencies generally, with the bulls act-

ive and the bears waiting for something to happen.

The following shows the amount of wheat and flour, together with the amount of corn, on passage to United Kingdom, for ports of call or direct ports for the weeks mentioned:

	1890.	1890.	1889.
	Dec. 2.	Nov. 25.	Dec. 3.
Wb. & flour, qrs.	2,273,000	2,375,000	1,900,000
Corn, qrs.....	436,000	395,000	381,000

The following shows the amount of wheat and corn on passage to the Continent for the past week, the previous week, and for the same week last year:

	1890.	1890.	1889.
	Dec. 2.	Nov. 25.	Dec. 3.
Wheat, qrs....	540,000	648,000	436,000
Corn, qrs.	114,000	101,000	166,000

India wheat to United Kingdom.....
India wheat to Continent.....

The imports into the United Kingdom for the past week and the previous week and for same week last year:

	1890.	1890.	1889.
	Dec. 2.	Nov. 25.	Dec. 3.
Wheat, qrs.....	268,000	207,000	272,000
Corn, qrs.....	54,000	58,000	114,000
Flour bbls.....	156,000	160,000	228,000

Wednesday brought weaker and lower markets, on western realizing. December wheat closed at \$1.02½, with receipts 27,304, exports 86,123, and options 6,432,000 bushels. December corn closed at 60½c., with receipts 50,043, exports 72,871, and options 440,000 bushels. Buckwheat grain was nominally 58c. Oats were quite firm, December closing at 49½c., with receipts 91,959, exports 10,174, and options 600,000 bushels. Rye grain was firm at the following quotations: State 79@82c.; Western 76@79c.; Canada 71½@72½c. in full loads afloat, and car lots on track at 2@3c. less. Barley was wholly neglected and nominal at the following: No. 2 extra Canada 90@92c.; No. 1 95@97c.; No. 2 Milwaukee 79@80c.; Western nominal. Malt followed barley and was nominally unchanged at the following: New Western 93@98c.; new country Canada \$1.03@1.13; new city do \$1.08@1.18, cash and time. Old—73@80½c. for two-rowed, 78@83c. for six-rowed, 83½@90c. for country-made Canada and 90½@98c. for city do. Millfeed was nominally steady and unchanged at old prices, with only small sales or offerings. Quotations: 40, 60 and 80-lbs at \$1.05, 100-lbs at \$1.20, and rye at \$1.05.

Wheat flour was dull, weak and lower to sell in New York. Milwaukee patents brought \$5.30 and rye mixtures \$4.25. Fancy spring patents brought \$5.45. Receipts included 21,253 sacks and 18,922 barrels, and exports 44,512 sacks and 19,777 barrels.

Rye flour was in fair demand at \$4.20@4.35 for good to choice brands. Buckwheat flour was strong and active at \$2.15@2.25 in bags. Corn products were dull at the following quotations: Western and Southern in barrels \$3.05@3.25; Brandywine \$3.25; granulated yellow \$3.35@3.60; granulated white \$3.60@3.90; coarse bag meal \$1.10@1.14; fine yellow \$1.24@1.29; fine white \$1.32@1.34 for city; Southern \$1.10@1.65 for coarse to granulated; brewers' meal \$1.41@1.44; hominy chops \$1.00@1.12.

Thursday brought little change in the markets. December wheat closed \$1.02½, with receipts 85,400, exports 137,654, and options 2,504,000 bushels. December corn closed at 61½c., with receipts 14,550, exports 30,390, and options 296,000 bushels. December oats closed at 49½c., with receipts 82,000, spot sales 117,000, and options 145,000 bushels. The minor lines were featureless.

Wheat flour was heavy. Receipts were 13,252, and sales 21,000 packages. Quotations were: Low extras \$3.45@3.90; city mills \$5.10@5.45; city mill patents \$5.15@5.85; winter wheat low grades \$3.45@3.90; fair to fancy \$3.90@5.15; patents \$4.45@5.50; Minnesota clear \$4.15@5.00; straight \$4.40@5.25; Minnesota straight patents \$4.75@5.50; rye mixtures \$4.00@4.60; superfine \$3.45@3.80.

BUFFALO MARKETS.

Buffalo, N. Y., December 6, 1890.
Business here is moderately good. Conditions and prices are shown in detail as follows: WHEAT—As for several days, little was done here. The sales reported were No. 1 hard at \$1.06½. No. 1 Northern at \$1.01 and do at \$1.02. The market closed with prices held ½c above these prices. CORN—No change in prices is reported. No 2 yellow closed at 59c., No. 3 yellow at 57½@57¾c., according to color; No 2 corn at 58@58½c., and No. 3 corn at 56½@57c. Sales were made within these limits. OATS—No 2 white oats closed at 49½@50c. on track and 50½c. in store; No. 3 white at 49½@49¾c., and No. 2 mixed at 48½c. Sales were reported at these figures. BARLEY—Choice Michigan sells at 78@80c., fair to good at 75@78c., No. 2 Western at 75@77c., and No. 3 do at 70@74c. No Canada barley is offered to a quotable extent. RYE—The market is nominally held at 74@75c for No. 2, but none is offered. OATMEAL—Akron, \$7.20; Western, \$6.95 per bbl; rolled oats, in cases, 72 lbs, \$3.85. CORNMEAL—Coarse, \$1.15@1.20; fine, \$1.20@1.25; granulated \$1.75 per cwt. MILL-FEED—City-ground coarse winter, \$19.00@20.00 per ton; fine do, \$19.50; finished winter middlings \$22.00@23.00; coarse spring do, \$22.00.

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Spring Wheat.	Winter Wheat.
Patents..... \$6.25@6.50	Patents .. \$6.25@6.50
S't Bakers'... .. @5.75	S't roller. . 5.25@5.50
Bakers' cl'r... .. @5.25	Amber . . . 5.00@5.25
B Rye mixt. . . . @4.75	Crk'r flour... 5.00@5.25
Low Grades... .. @3.50	Low grades. . 3.50@3.75
Rye flour . . . 3.75@4.00	Graham. . . 4.75@5.00

Buckwheat flour, \$2.75 per 100 pounds.
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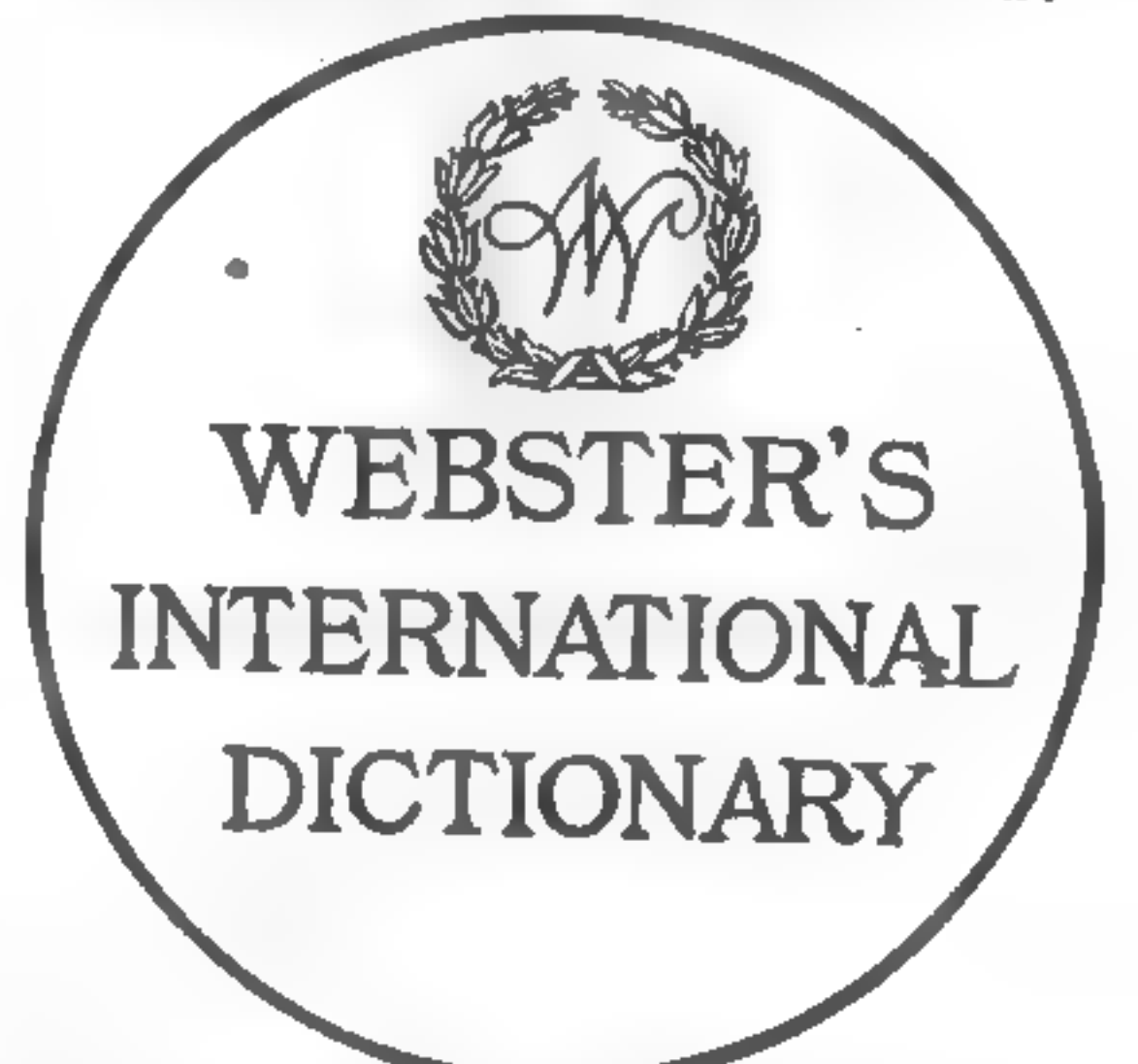
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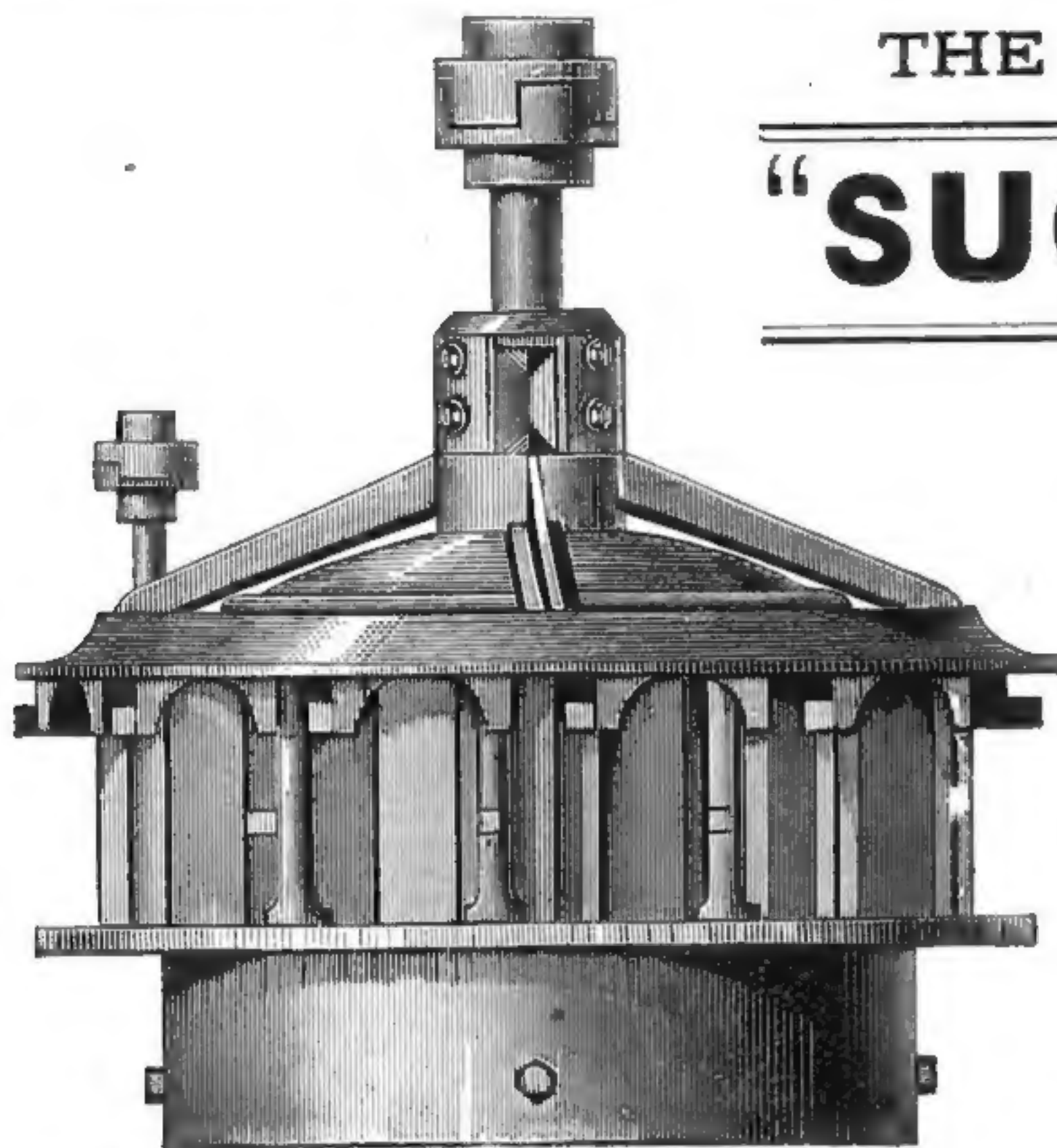
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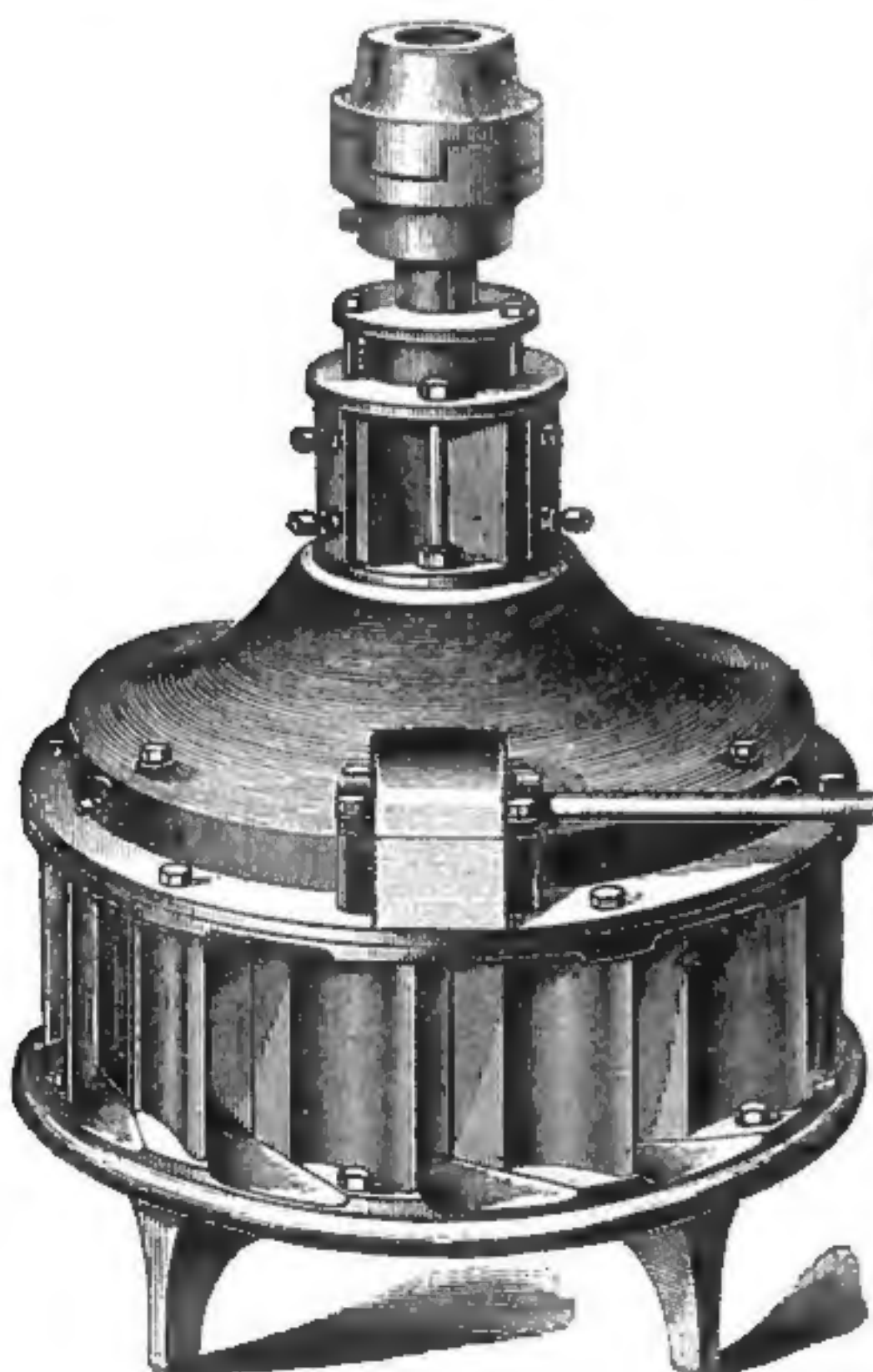


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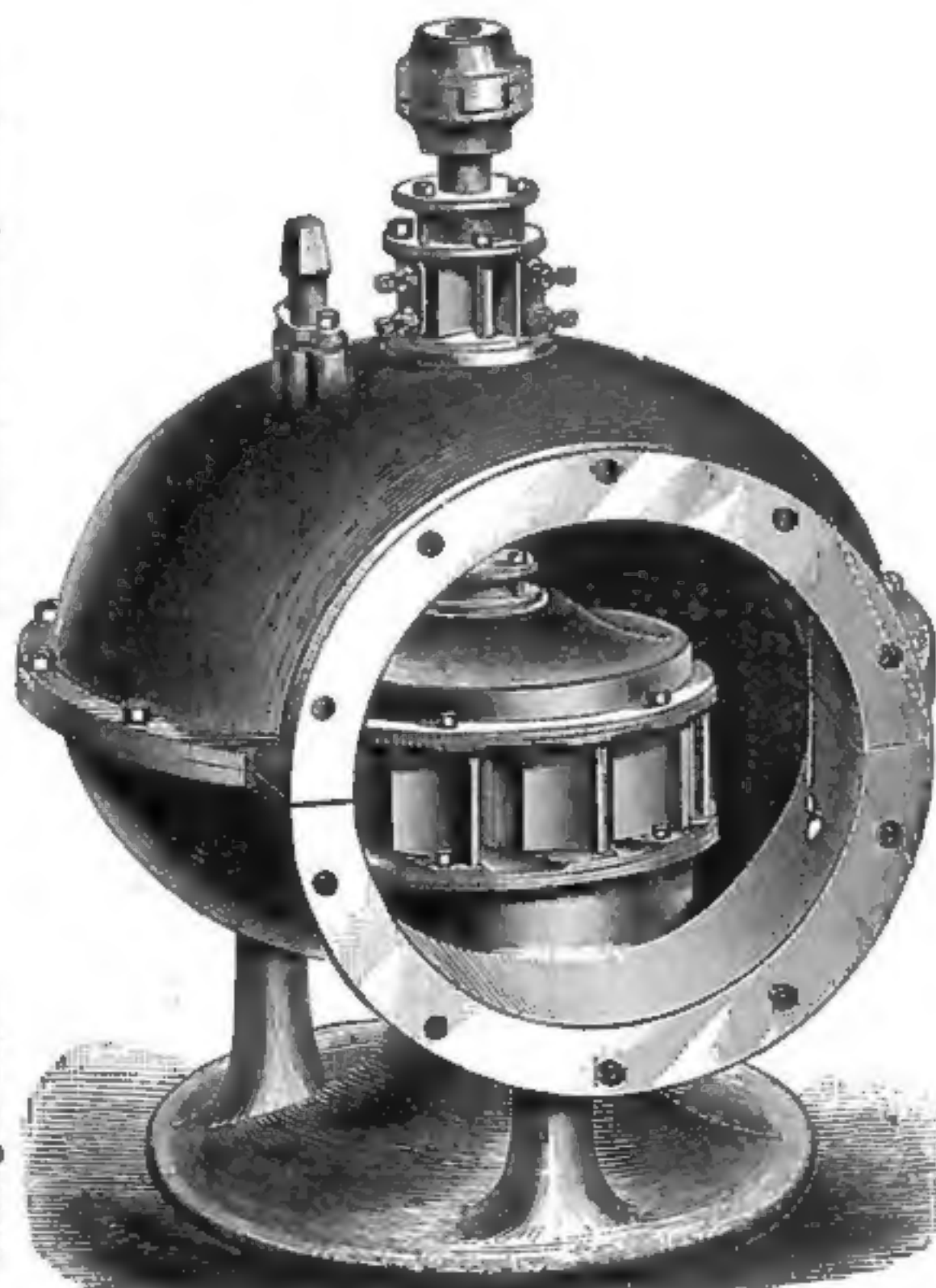
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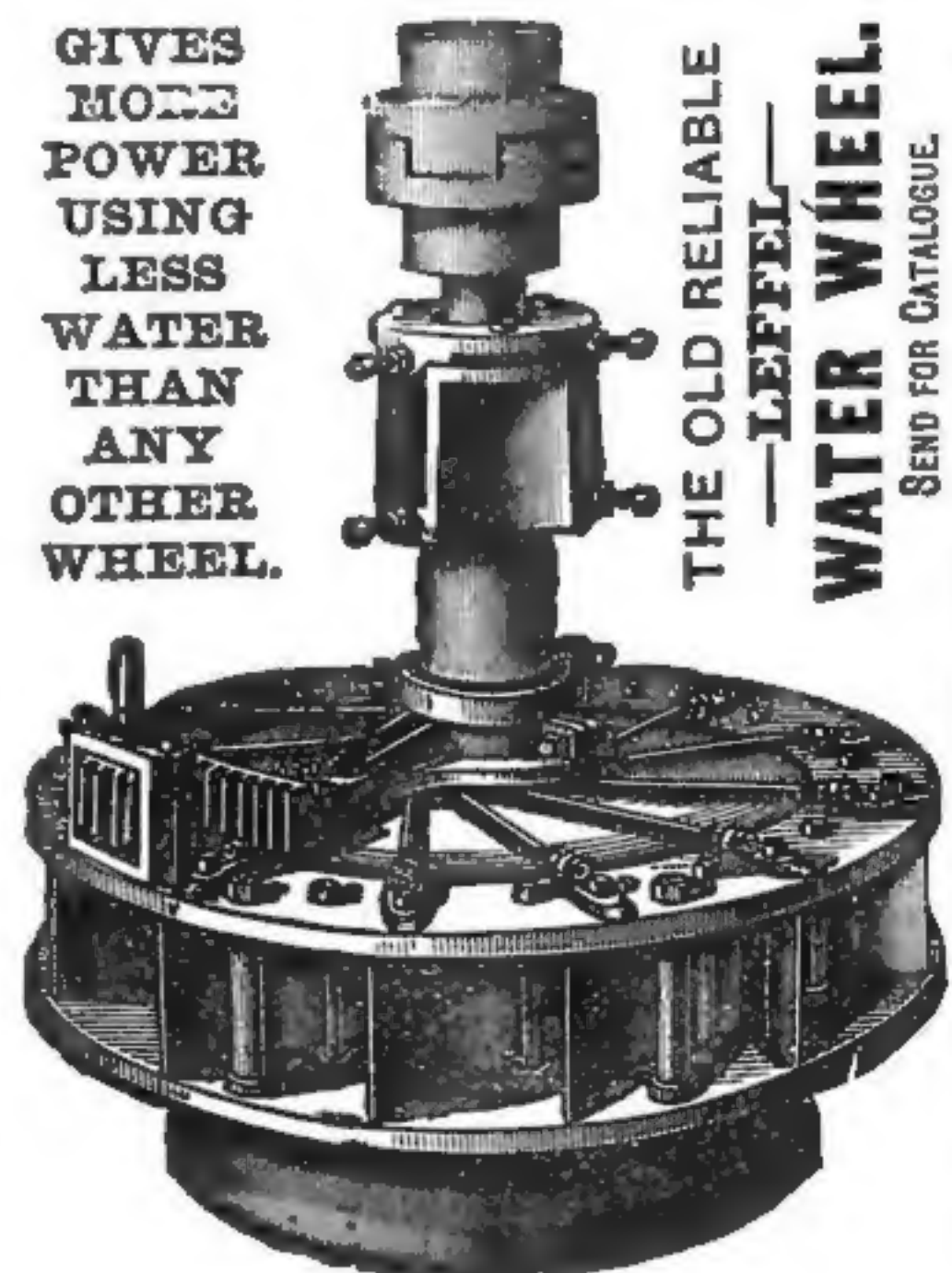
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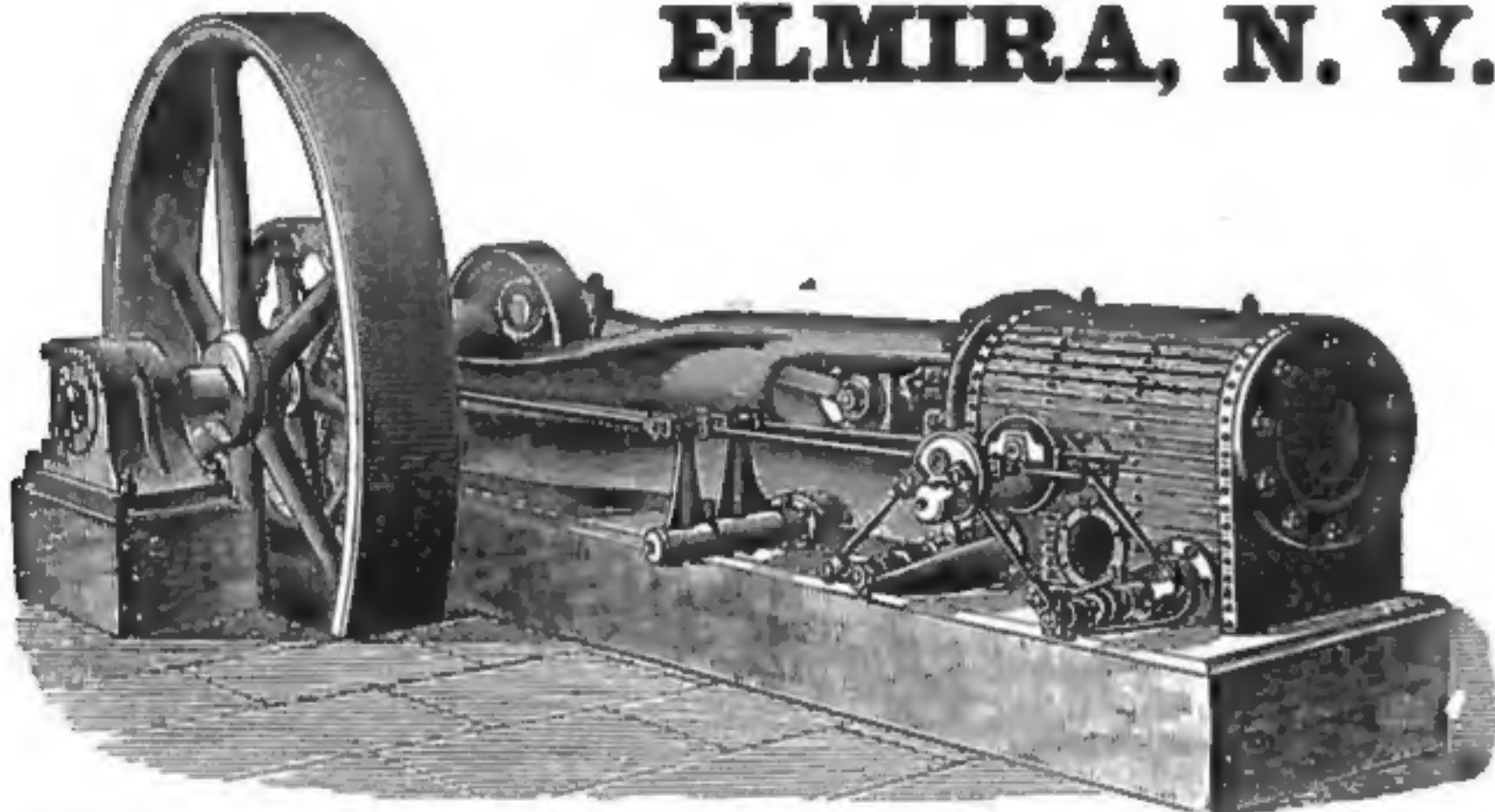
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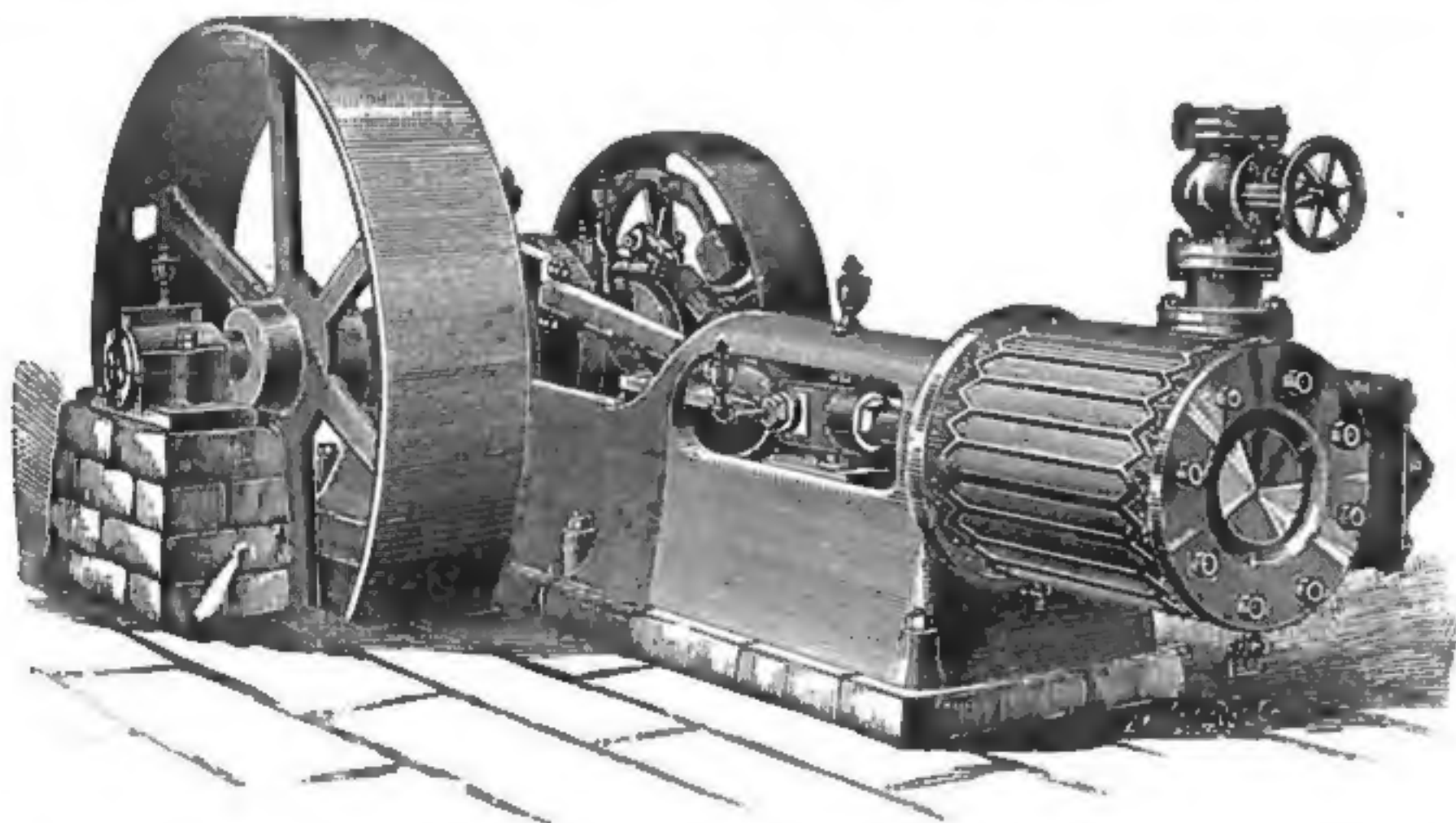
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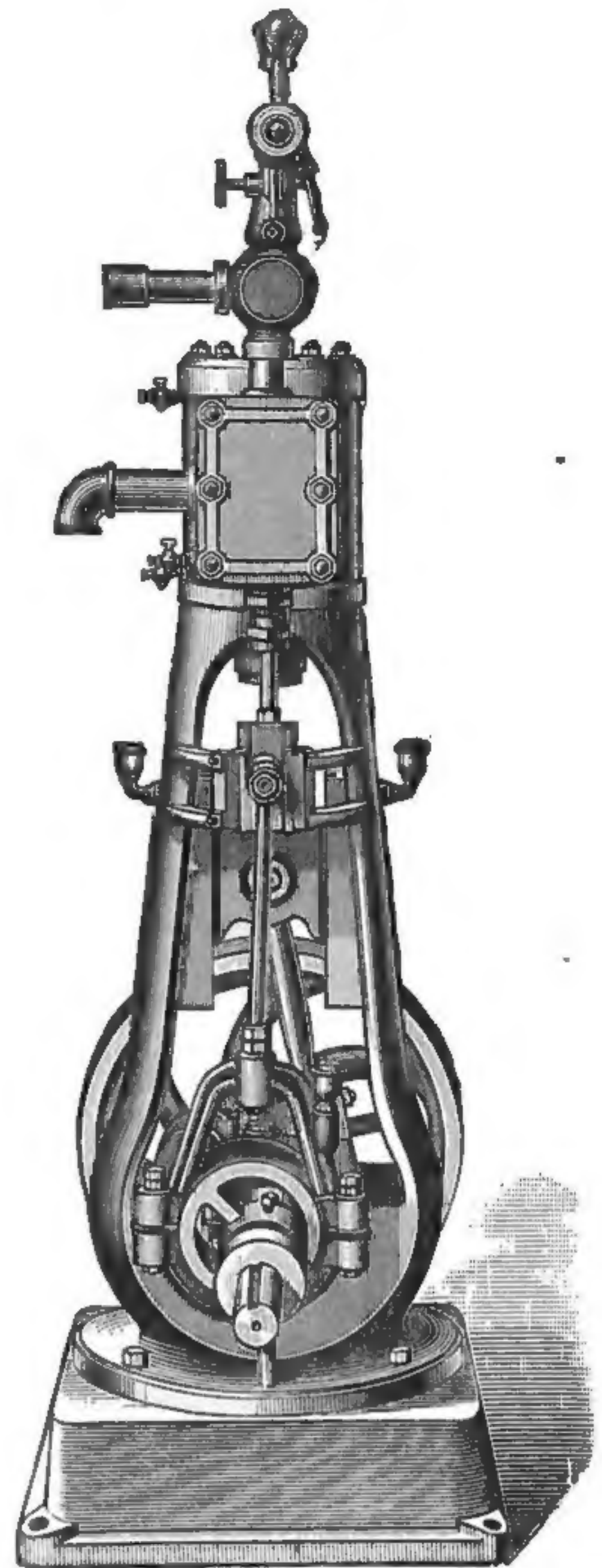
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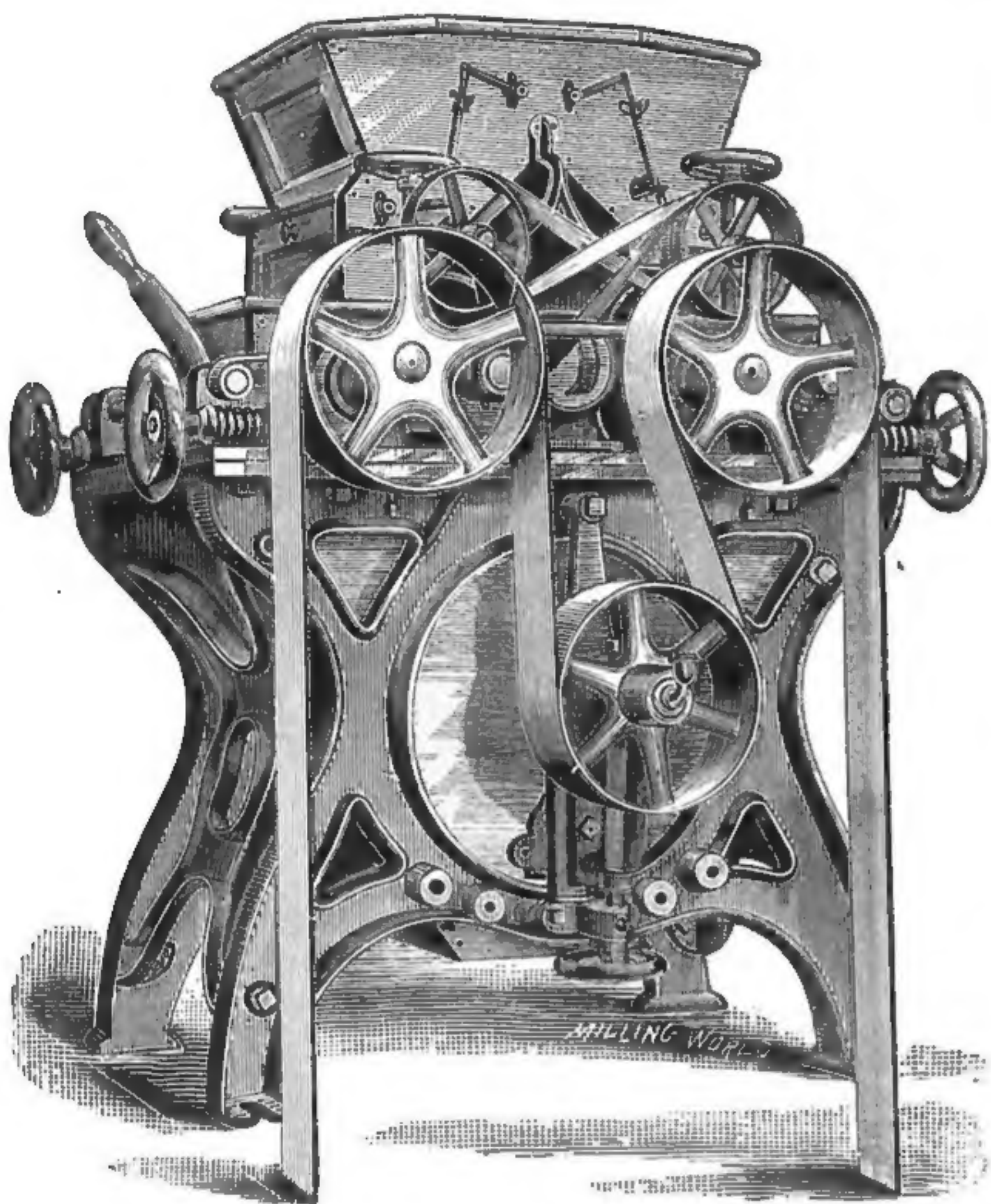


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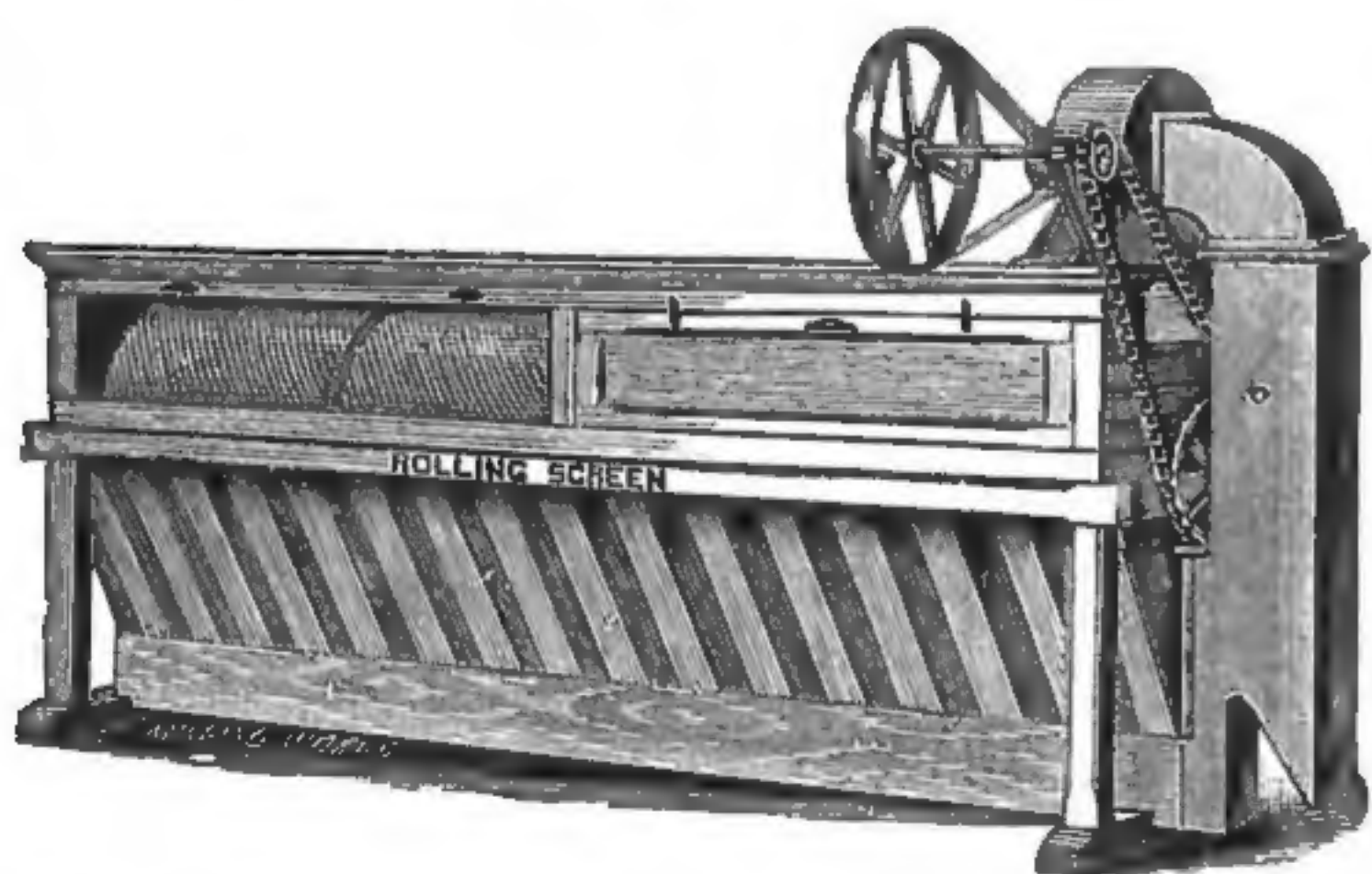
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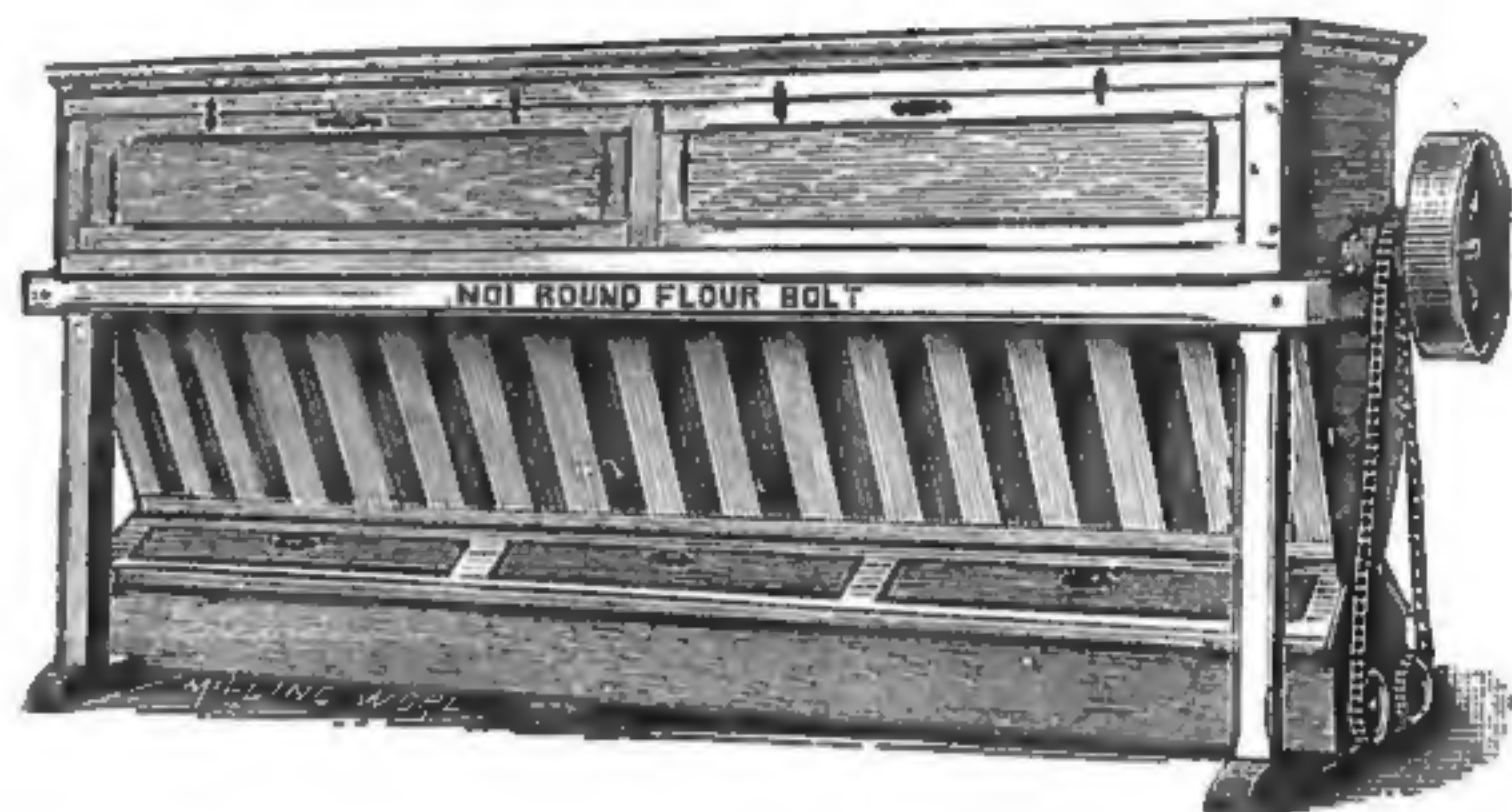
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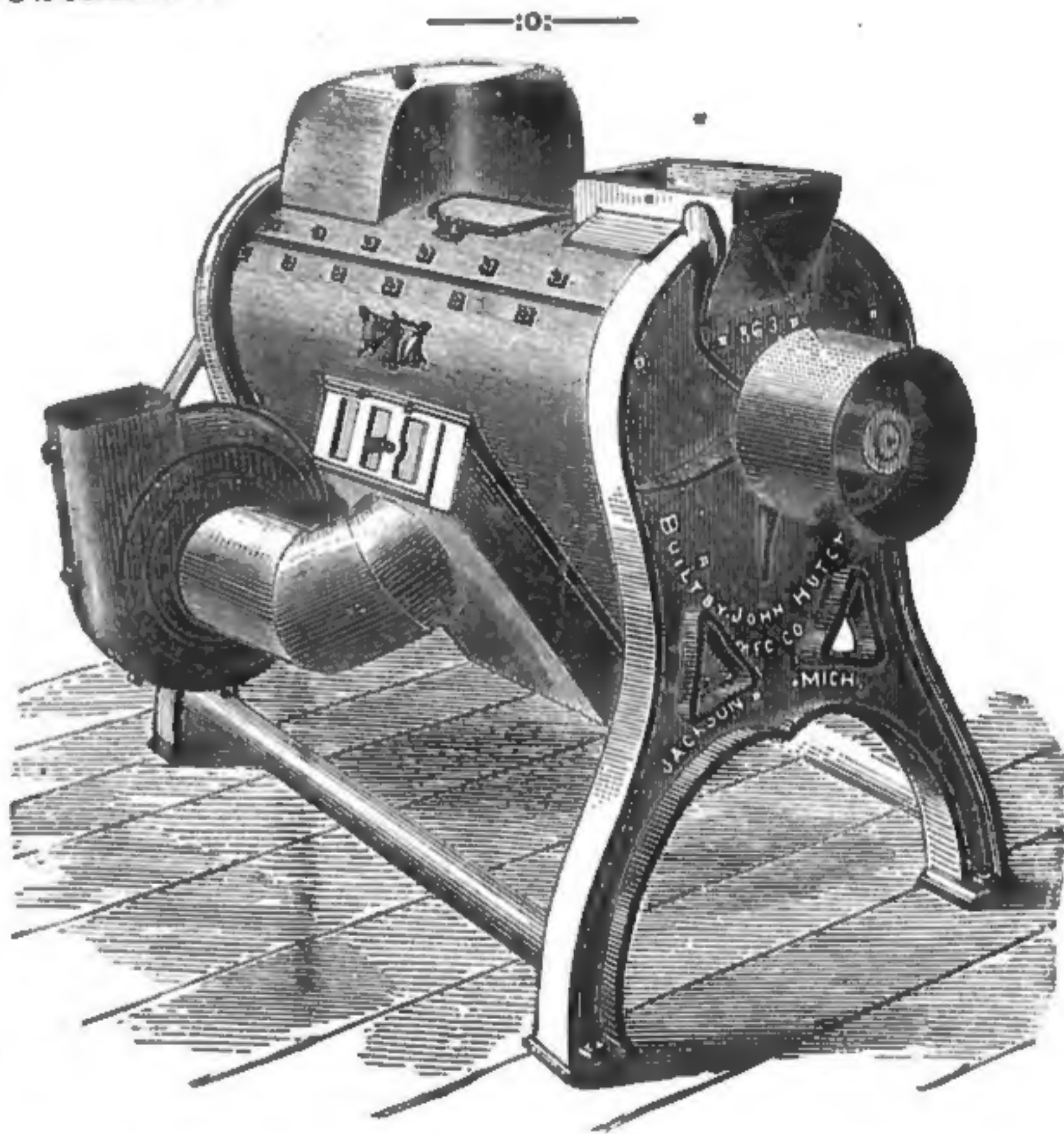


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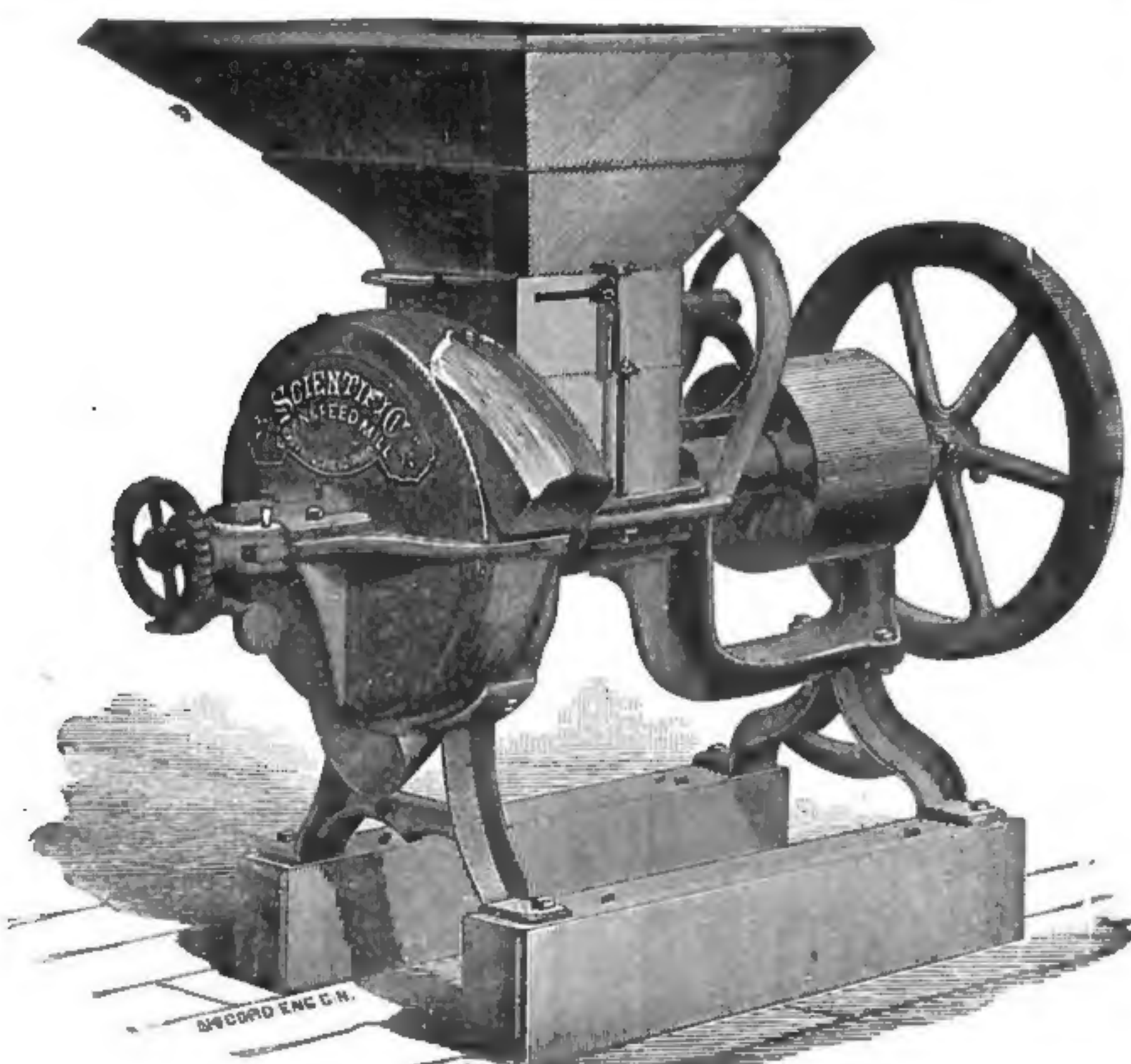
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